

WEAPONS

1

OVERTURE TO AGGRESSION



A PICTORIAL SURVEY OF RUSSIAN SMALL ARMS

1891-1943

BY ROGER MARSH

RECEIVED

1343

WEAPONS is a technical publication dealing with, oddly enough, weapons of all types. The first issue, which has taken up practically all of my time since I had a leg rebuilt a year ago, deals exclusively with Russian weapons of the period 1891-1943, beginning with the introduction of Russia's first modern small arm and ending with the period of stabilized designs of ground weapons. A succeeding issue - well, some future issue - of WEAPONS will carry the story up to date, as soon as enough adequate and accurate information is available. In this regard it should be pointed out that Russian weapons used in Korea indicate that arms and supplies of the types and models in use in 1943 are still in use and are still being produced.

WEAPONS is available on subscription at five dollars for 12 issues. The first issue is no longer available on subscriptions, which will now (from January 1950 to the actual publication date of WEAPONS 2) begin with WEAPONS 2. WEAPONS appears at VERY irregular intervals. Future issues will probably be by no means so large as this one. The subscription price is very steep: I am not supplying a magazine - I am supplying information which in many cases costs me a small fortune, and it takes weeks of full-time work (drawing and Vari-Typing) to get it up to the point where I can start to spend some more money for plates, paper, envelopes and postage. The source material for WEAPONS 1, stacked up, makes a stack some seven feet high, not counting microfilms...one batch of photostats alone cost me eleven bucks - see what I mean? If you should subscribe to WEAPONS, you will get a lot of information and not very much paper...and if that's the way you like it, five dollars sent to Roger Marsh, Box 200, Hudson, Ohio, puts you on the lists. Remember, however - the first issue took over a year (including hospital time, of course) to prepare, and I don't guarantee any miraculous increase in speed, although succeeding issues should go a lot more easily.

Some authors and publishers think that credits and acknowledgements in a book are a sign of weakness. They seem to think that an author should try to appear to have a straight pipeline to Heaven whence he draws his information. This is silly. A lot of people helped more or less directly on WEAPONS 1. Without a superhuman degree of forbearance on the part of my immediate family, I would have been out in the snow - bad temper and all - when the going got tough (how they put up with me when the drawings were going worst is beyond me). Lee King has been a lot more than just a great help, too. Editor Paul Bellamy of The Cleveland Plain Dealer saved my life and solvency by deciding to try out a straight gun column in the PD - "Guns of Past and Present". General Julian S. Hatcher and John Scofield of the NRA have always been ready with advice, information and encouragement. Emil Schnedarek and John Conlon have supplied much info. Phil Sharpe, well known to every arms man in the country - and the world - supplied a tremendous amount of data. William H. Woodin III was most helpful in the matter of ammunition. Garret Underhill and Harry Wandrus have been most helpful. A.L. Rideout was a great help in the Russian material, and Bernard Rand supplied that without which most of the translations and transliterations would have had to be left out. Mildred Stewart and Elias Jones of the Technology Division, Cleveland Public Library, have always been ready to help when asked. And, if you want to be realistic, WEAPONS 1 would never have appeared had it not been for the entire staff and personnel of U.S. Marine Hospital on Fairhill Road in Cleveland, where I went in osteomyelitis and an atypical osteoid osteoma and came out with a scar. I've been in a lot of hospitals, but they don't come better than Marine.

I was going to try to list the sources for WEAPONS 1. Let's be realistic - the list would be about three pages long. And, undoubtedly I have lost track of a few individuals who should have been credited, too. Sorry: I did my best.

Every individual interested in weapons should join:

The National Rifle Association of America 1800 Rhode Island Avenue Washington 6, D.C.	The American Ordnance Association 705 Mills Bldg. Washington 6, D.C.	The U.S. Revolver Association 49 Chestnut St. Springfield, Mass.	YOUR state and local pistol and rifle as- sociations, gun clubs and collector groups!
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- shooters wise, organize!!

Of course there will be some points in this publication which will be open to debate. I have made every effort to eliminate mistakes or obvious boners, but some errors are almost inevitable in a field so cloaked with obscurity and so muddled by deliberately "doctored" Russian publicity. Corrections, if required, will be made in future numbers of WEAPONS.

BELOW: Notes on the Russian alphabet and a few useful terms. Others will be found in the main text. See note below alphabet....

А а	soft A
В в	B
В в	V
Г г	G
Д д	D
Е е	"yeh"
Ё ё	"yaw"
Ж ж	zh
З з	Z
И и	ee
Й й	-ih VERY short, and far back in the throat.
К к	K
Л л	L
М м	M
Н н	N
О о	"aw"
П п	P
Р р	R - and roll it!
С с	ss
Т т	T
У у	oo
Ф ф	F
Х х	kh well down in your throat
Ц ц	ts
Ч ч	ch
Ш ш	sh
Щ щ	sh-ch
Ъ ъ	hard sign
Ы ы	short I
Ь ь	soft sign
Э э	short E
Ю ю	yoo
Я я	ya

Пистолет	Pistol
Автоматический Пистолет	Automatic pistol
Револьвер	Revolver
Винтовка	Rifle
Магазинная винтовка	Magazine rifle
Противотанковое ружье	Anti-tank rifle
Автоматическая винтовка	Automatic rifle
Пистолет-пулемёт	Machine carbine
Ручной пулемёт	Machine rifle
Пулемёт	Machine gun
Станковый пулемёт	heavy machine gun
Станок, установка	Mount
Магазин	Magazine
Обойма	clip (also autopistol mag.)
Пулемётная лента	Ammunition belt
Ружейный ремень	sling
Патрон	Cartridge
Патронная гильза	Cartridge case
Пуля	Bullet
Патронник	Chamber
Канал ствола	bore
Нарезка	Rifling
Патрон бокового боя	Rimfire cartridge
Патрон центрального боя	Center-fire cartridge
Граната	grenade
Дымовая граната	Smoke grenade
Мина	Trench mortar shell
Мортира	Heavy mortar
Миномёт	Trench mortar
Ружейная мортира	Grenade launcher
Железо	Iron
Жесть	Tinplate or plated iron
Сталь	Steel
Мель, красная мель	Copper
Латунь	Brass
Бронза	bronze
Цинк	Zinc

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One final note before you plunge in...the Russians have used a great many foreign weapons, among them Gew98s, p14s, BARs, Vickers, Madsens, foreign Maxims, Vickers-Berthiers, MP38s and MP40s (the last two were widely used). In this book, since the line had to be drawn somewhere, I have excluded most non-Russian weapons, even many of those which were generally used. (The Schwarzlose and Bolo Mauser pistols are included, however.) Don't worry - there's enough native stuff to keep you busy. I hope you enjoy it...and learn something!

Roger Marsh

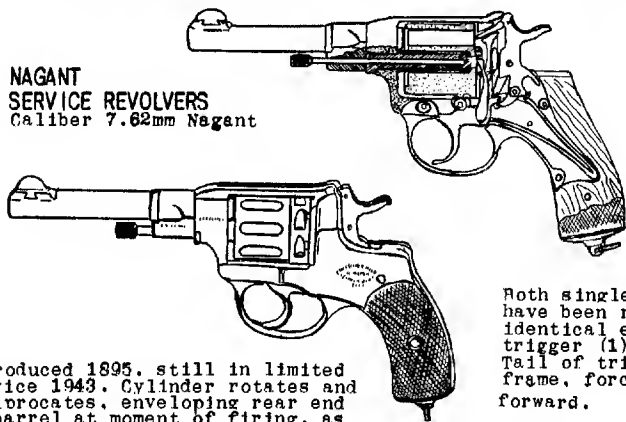
Individuals interested in pursuing the language further should buy:
Technical Manual 30-544 (Russian Military Dictionary) 70¢
Technical Manual 30-944 (Dictionary of Spoken Russian) \$2.50
...from the Superintendent of Documents
Washington 25, D.C.

Also recommended: Essentials of Russian, by Gronicka and Zhemchuzhnaya-Rates
New York, (1948)

This is not a short course in Russian, and the transliterations in the above alphabet are necessarily approximations which do not show the variety of pronunciations which the Russian language accords a letter according to emphasis and position.

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**NAGANT
SERVICE REVOLVERS**
Caliber 7.62mm Nagant



Introduced 1895, still in limited service 1943. Cylinder rotates and reciprocates, enveloping rear end of barrel at moment of firing, as mouth of case enters rear of barrel to provide a gas seal.

Cartridges single-loaded through gate on right. Rod ejector mounted in swinging crane on barrel, housed within cylinder pin.

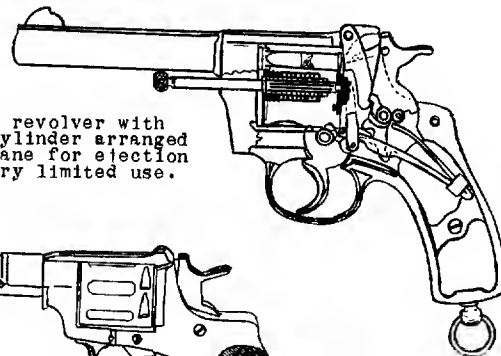
7 shot, 4½" barrel, 9½" overall, 1½ lbs.

Both single-action and double-action trigger mechanisms have been reported (see above). Mechanisms are practically identical except for double-action pawl on hammer. In operation, trigger (1) and hammer (2) rotate, lifting hand (3) to index cylinder. Tail of trigger lifts block (4) which, riding in vertical grooves in the frame, forces breech-piece (5) against base of cartridge, forcing cylinder forward.

Release of trigger after firing permits co-axial spring in cylinder to force cylinder back, ready for next cycle.

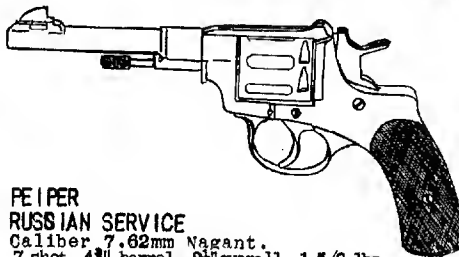
FEIPER 1889

An "obturator" revolver with reciprocating cylinder arranged on swing-out crane for ejection and loading. Very limited use.



**FEIPER
RUSSIAN SERVICE**

Caliber 7.62mm Nagant.
7 shot, 4½" barrel, 9½" overall, 1-5/8 lbs.
Does not have reciprocating cylinder.



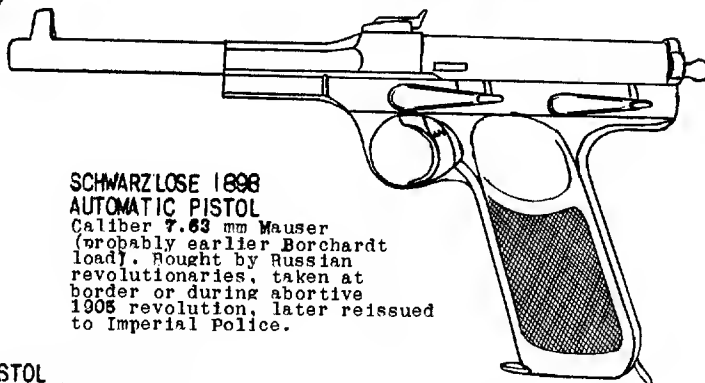
**RUSSIAN
POLICE REVOLVERS**

Caliber 7.62mm Nagant
6-shot cylinders. Apparently imported, these were also made in caliber 8mm Lebel. Cylinders do not reciprocate.

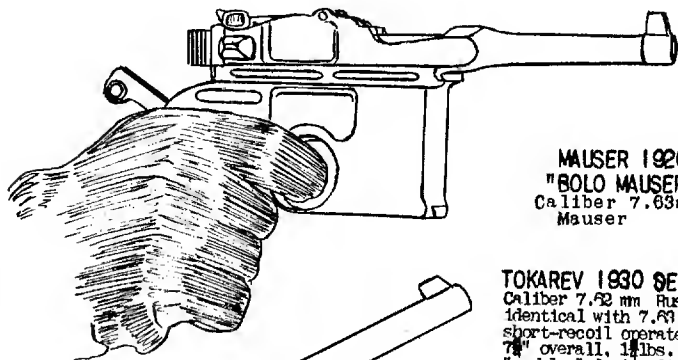


**SCHWARZLOSE 1898
AUTOMATIC PISTOL**

Caliber 7.63 mm Mauser
(probably earlier Borchardt load). Bought by Russian revolutionaries, taken at border or during abortive 1905 revolution, later reissued to Imperial Police.

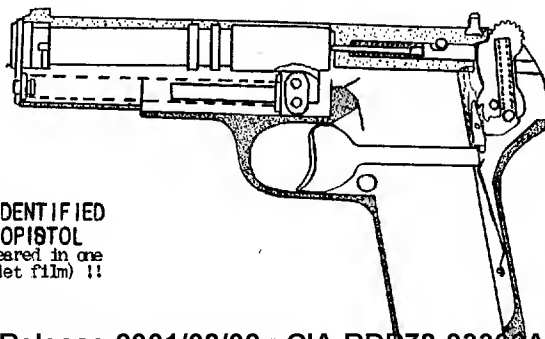


**MAUSER 1920
"BOLO MAUSER"**
Caliber 7.63mm
Mauser

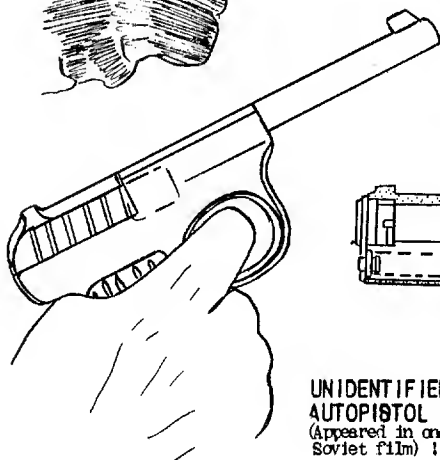


TOKAREV 1930 SERVICE PISTOL

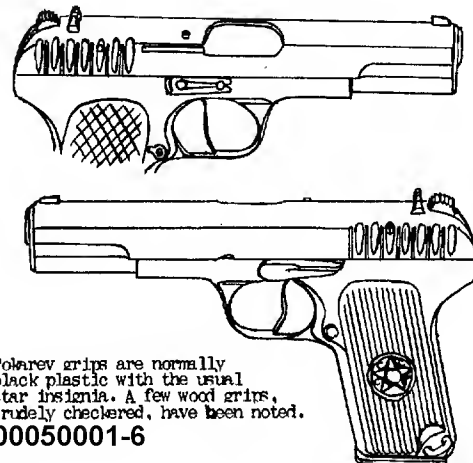
Caliber 7.62 mm Russian autopistol (practically identical with 7.63 mm Mauser). Modified Browning type, short-recoil operated, 8-round magazine, 4½" barrel, 7½" overall, 1½ lbs.. Hammer mechanism lifts out "en bloc" during disassembly.



**UNIDENTIFIED
AUTOPISTOL**
(Appeared in one
Soviet film) !!

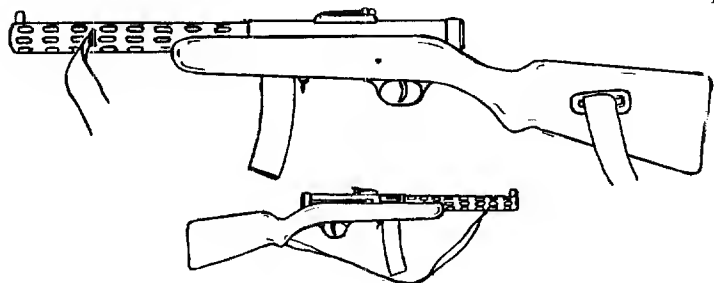


Tokarev grips are normally black plastic with the usual star insignia. A few wood grips, crudely checkered, have been noted.

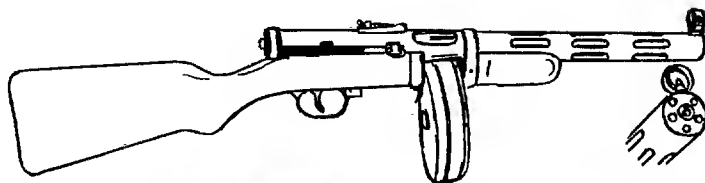
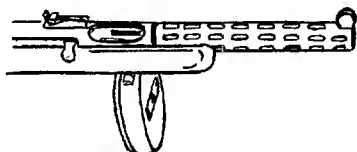


SUBMACHINE GUNS

2



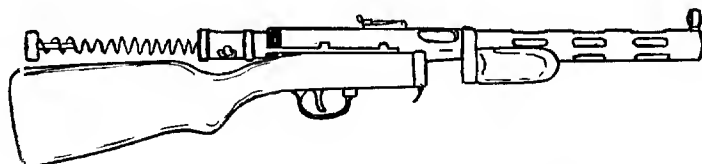
ПИСТОЛЕТ-ПУЛЕМЕТ обр. 34/38
LEFT: MACHINE PISTOL, Model 34/38
Caliber 7.62mm Russian autopistol
Operation: blowback
Cooling: air
Weight: 7-1/2 lbs.
Length: 30-1/2"
Barrel: about 10"
Box magazine capacity: 25 rds.
Drum magazine capacity (drum not
general issue): uncertain, pro-
bably around 70 rounds.
Cyclic: reported around 900 RPM
Sights: 50-500 meters



ПИСТОЛЕТ-ПУЛЕМЕТ системы ДЕТЯКОВА обр. 1940 -- ППД

RIGHT: MACHINE PISTOL, Degtyarov system, Model 1940: PPD

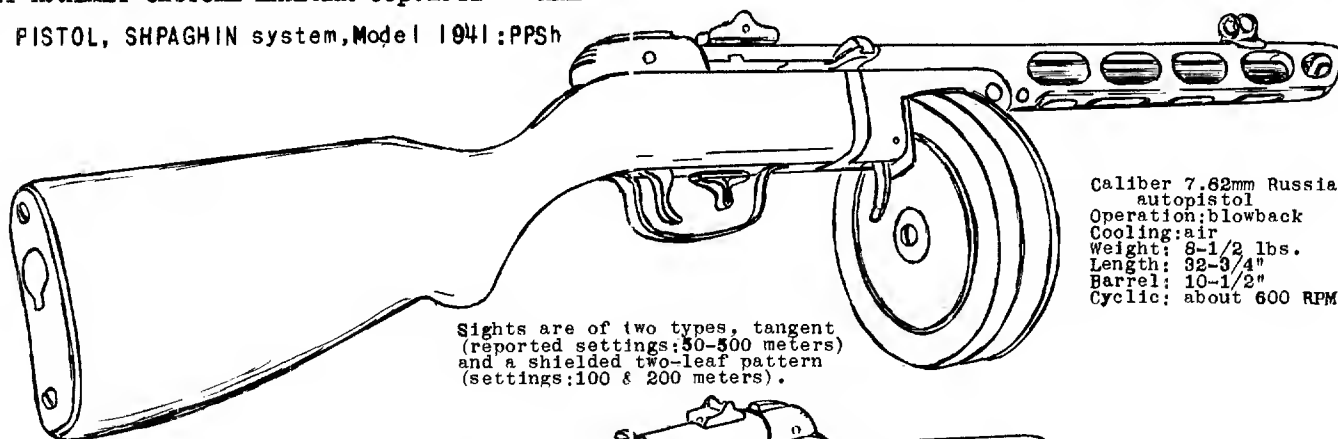
Caliber 7.62mm Russian autopistol
Operation: blowback
Cooling: air
Weight: 7-3/4 lbs.
Length: 30-1/2"
Barrel: about 10"
Drum magazine capacity: 71 rds.
Cyclic: reported around 600 RPM
Sights: 50-500 meters.



BELOW:

ПИСТОЛЕТ-ПУЛЕМЕТ системы ШПАГИНА обр. 1941 -- ППШ

MACHINE PISTOL, SHPAGHIN system, Model 1941: PPSH



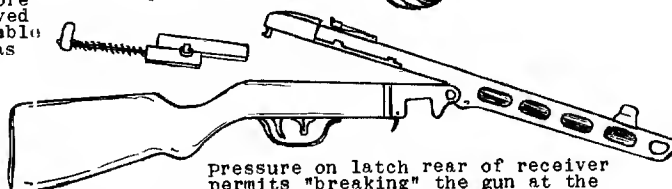
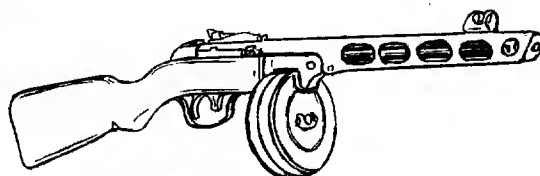
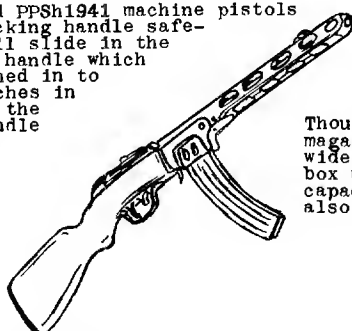
Caliber 7.62mm Russian
autopistol
Operation: blowback
Cooling: air
Weight: 8-1/2 lbs.
Length: 32-3/4"
Barrel: 10-1/2"
Cyclic: about 600 RPM

Sights are of two types, tangent
(reported settings: 50-500 meters)
and a shielded two-leaf pattern
(settings: 100 & 200 meters).

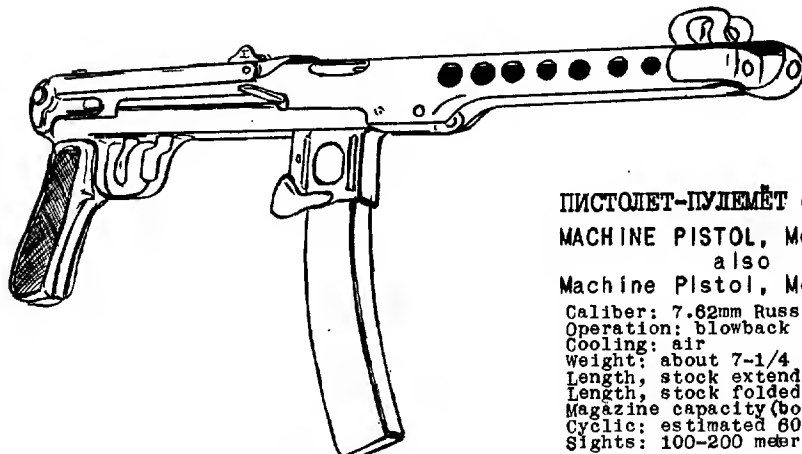
Front sights also vary
slightly according to
manufacture.

PPD1940 and PPSH1941 machine pistols
have a "cocking handle safe-
ty", a small slide in the
top of the handle which
may be pushed in to
engage notches in
the top of the
cocking handle
slot.

Though the 71-round drum
magazine was the more
widely used, a curved
box magazine (probable
capacity-25 rds) was
also issued.



pressure on latch rear of receiver
permits "breaking" the gun at the
hinge, exposing barrel for cleaning
removal of bolt.



НИКТОМЕТ-ПЫЛЕМЕТ сдп. 1943

MACHINE PISTOL, Model 1943

also

Machine Pistol, Model 1942

Caliber: 7.62mm Russian autopistol

Operation: blowback

Cooling: air

Weight: about 7-1/4 lbs.

Length, stock extended: about 35-1/2"

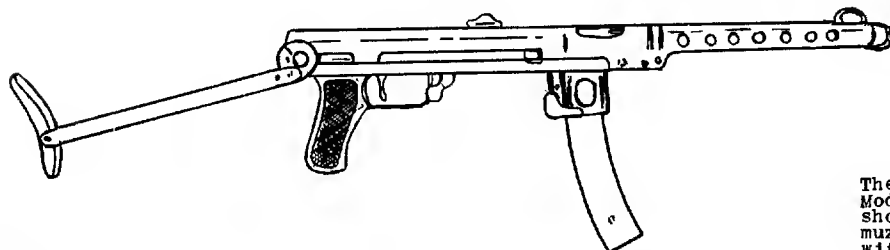
Length, stock folded: about 24-1/2"

Magazine capacity(box): 25 rds.

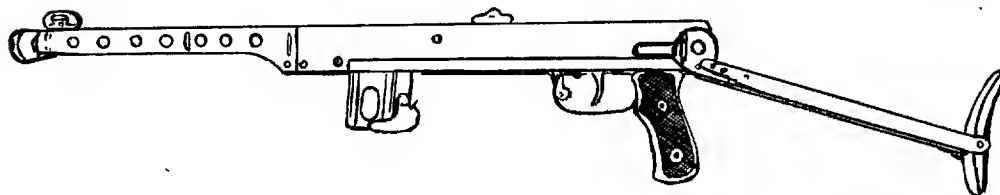
Cyclic: estimated 600 RPM

Sights: 100-200 meters.

This weapon has been variously reported as the Model 42 and the Model 43. Probably both designations have some virtue. The arm seems to be a modification of the PPSH 41 action with folding stock but lacking the provision for use of drum magazine and without the safety slide in the cocking handle. An examination of the illustrations, taken from pictures of arms of various dates, will show varying executions on the basic pattern.



This arm was reportedly designed as a paratroop weapon, which is what any folding-stock machine-pistol is immediately called. It appears to have been an "elite weapon", issued to the Guards and to paratroop units serving as shock troops.



The metal and plastic construction of the Model 43 is unique in the field of Russian shoulder weapons. Note the interesting muzzle brake - merely a bent piece of steel with a hole at the strategic point.

The three-month Russo-Finnish War which began on 30 November 1939 found the Red Army supplied - or, rather, undersupplied - with machine carbines of the 1934/38 pattern with 25-round box magazines. The Finns, on the other hand, had the superb Lahti-designed "Suomi pistol", whose accuracy, controllability and 70-round drum must have been a real eye-opener to the Soviets. The great Degtyarov (now apparently being eclipsed by Shpaghin) was turned loose on the problem; he came up with the PPD1940 - fast work! It is reported that, in order to speed production, the expedient was adopted of using old 7.62mm rifle barrels cut in half (after trimming off the old chamber and worn muzzle), each half then being chambered for the 7.62mm autopistol cartridge, thus making two barrels where there was but one before. In spite of such expedients, however, Russia was still short of machine-carbines when the fateful 22nd June 1941 rolled around. The rising star, Shpaghin, was on the job, however, and his PPSH1941, produced in record time, was soon general issue - so general, in fact, that it ultimately became almost a part of the Soviet uniform. The wooden-stocked slab-sided PPSH1941 has turned up as an arm of the Czech military (previously - post-war - armed with StG machine carbines, and VZ39s, ZK383s and ZK 383/ps were available), as a service weapon of the North Korean army and as a juicy tidbit of evidence in the hands of Warren Austin in the U.N. Security Council. The 1950 markings reported on the gun which Austin displayed indicate that the PPSH1941 is still being manufactured. Just where this leaves the Model 1943 (1942) is an open question.

The Model 1943 is generally reported as a paratroop weapon. This is not a particularly useful description in view of the fact that Russian paratroops were thrice absorbed, for all practical purposes, into the ground forces: although they were used as shock troops early in 1942, in the Leningrad, Smolensk and Don battles, they were subsequently withdrawn as paratroop units to "airborne" areas, but the German offensive against Stalingrad (August, 1942) caused the (probably somewhat bewildered, by this time) paratroops to be transmuted into Guards (Guards rifle, artillery and armored divisions) under Kuznezov. They were sent against the Germans - along with everything else - and Stalingrad was held. In the initial German invasion, Soviet paratroops had been practically wiped out in the process of breaking up the original blitz drive on Moscow (in late June to early August 1941) and in the August counterattacks, and their subsequent reorganization and reconstitution was scarcely well begun before, as noted, they were returned to "mud work". After the winter battles of which Stalingrad was the most famous, a final attempt was made in 1943 under Kapitochin to rebuild the paratroops, but circumstances did not thereafter require airborne infantry or paratroop activity, and so their activities faded back into the obscurity of the vastnesses of the U.S.S.R.. Apparently, the Soviets are still training paratroops: how these will be used is an interesting subject for speculation.

Interestingly, although the 43 is generally called the paratroop weapon, paratroops shown in Soviet pictures generally carried old faithful - PPSH 1941.

For more information on Soviet paratroops, read Asher Lee's THE SOVIET AIR FORCE (Harper & Brothers, New York, 1950; \$2.75)

To show you what a poor researcher is up against, note the following passage from INVASION IN THE SNOW, by John Langdon-Davies: "... (discussing the Suomi pistol) ... Second, its caliber has been increased from the 7.65 of the Bergmann gun to 9mm. The Russians have no 7.65 caliber weapons, but are plentifully supplied with 9mm Mauser Colt pistols. I was assured by Colonel Sillanpaa, a sufficiency of 9mm ammunition was available to the Finnish defenders... without drawing on home reserves of ammunition."

One can't help wondering about these "eye-witness" accounts. No issue 9mm Russian pistols or machine-carbines (except captured MP38s and 40s) are known. 9mm 18 9mm: how do you suppose the Finns used captured Russian autopistol ammo?

RIFLES

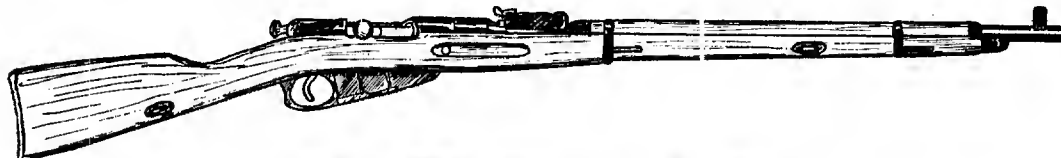
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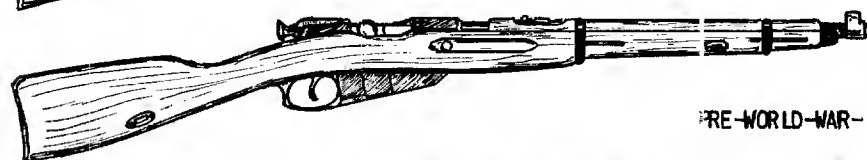
**MOISIN-NAGANT
MODEL 1891**
Standard rifle 31.2" bbl.
Caliber 7.62mm Russian



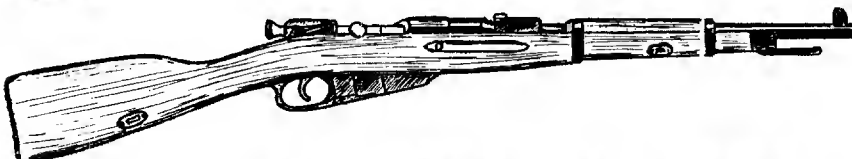
MODEL 1891
Dragon rifle 28.5" bbl.
Caliber 7.62mm Russian



MODEL 1891/30
Modernized standard rifle 28.5" bbl..
Caliber 7.62 mm Russian.
Round receiver ring.
May have turned-down bolt handle.



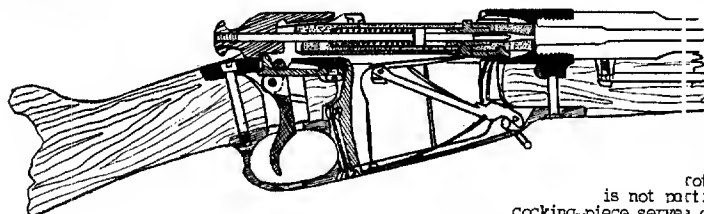
PRE-WORLD-WAR-I RUSSIAN CARBINE



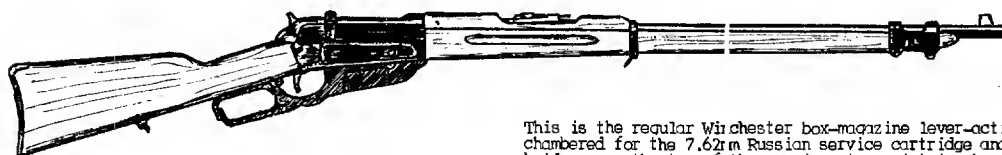
MODEL 1924/27 CARBINE



**WORLD WAR II
SPECIAL SHORT CARBINE**



THE MOISIN-NAGANT SYSTEM
A combination of the (Col. Sergei Ivanovich) Moisin breech mechanism with the magazine system developed by the Belgian Nagant. Magazine loaded from five-round stripping chargers. Interrupter on left wall of magazine prevents double feeds and minimizes rim-over-rim stoppages. Turning bolt rotates 90° to lock; lugs are horizontal when locked. The Moisin-Nagant system is not particularly attractive but is amply strong for the cartridge used. The heavy cocking-piece serves as a safety when pulled back and turned it is intercepted by the receiver body, which prevents it from moving forward and thus prevents discharge of the rifle. Moisons of pre-Red Revolutionary design have a receiver ring octagonal in section, while modern Moisons have a cylindrical receiver ring. Older patterns generally have step-graduated sights, frequently graduated in paces, while modern types have a Muser "tangent" pattern graduated in meters. In most models, old and new, the bolt handle - when locked - sticks straight out to the right, but rifles designed for use with telescopic sights (and some late-issue carbines) have turned-down bolt handles.



**WINCHESTER MODEL 1895
RUSSIAN SERVICE PATTERN**
Caliber 7.62mm Russian

This is the regular Winchester box-magazine lever-action rifle, Model 1895, chambered for the 7.62mm Russian service cartridge and fitted with a guide bridge over the top of the receiver to assist in charger-loading. It has the Winchester service stock.



**RUSSIAN SMALL-BORE RIFLE
T.O.Z.- 8 (and T.O.Z.-9)**
Caliber 5.6 mm (.22")

The T.O.Z. 5.6mm (.22") rifles may be found in both single shot (TCE8) and repeater (TCE9 with box magazine) versions. TCE rifles have been fitted with the Russian 4-power P.E. scope sight. They may also be fitted with the 3.5 power P.U. scope.

AUTORIFLES

5

It is understood that Russian semi-auto rifles, even of the 1930s, were regarded as unsatisfactory in service and were neither manufactured nor issued extensively after 1942. Reportedly, the fault lay not in the rifles but in Russian ammunition, whose quality was, to put it euphemistically, variable.

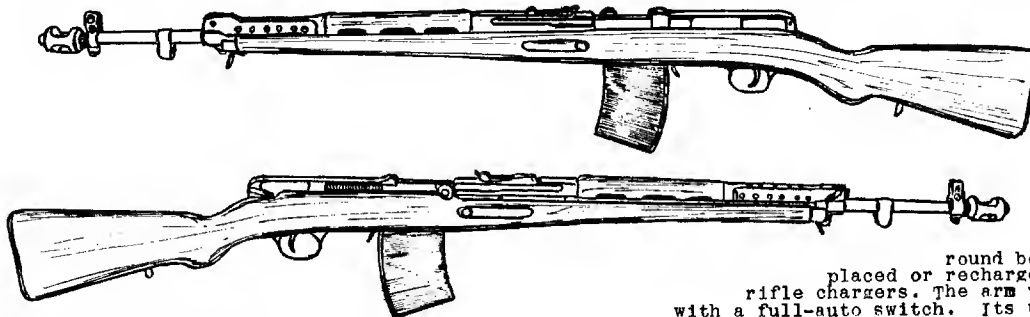
СИМОНОВ

SIMONOV

MODEL 1936

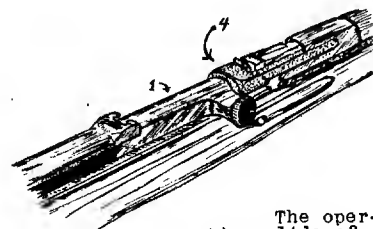
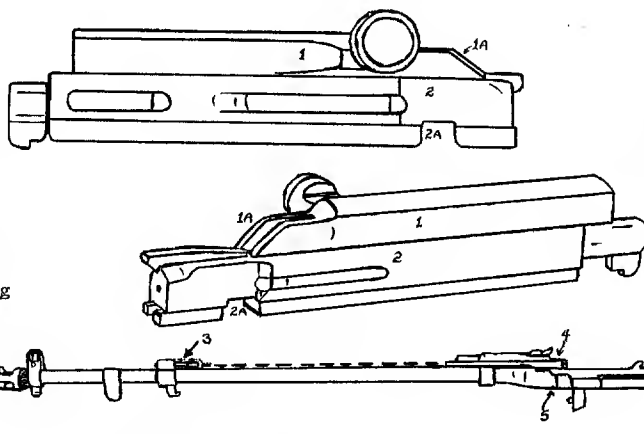
SERVICE RIFLE

Caliber 7.62 mm Russian



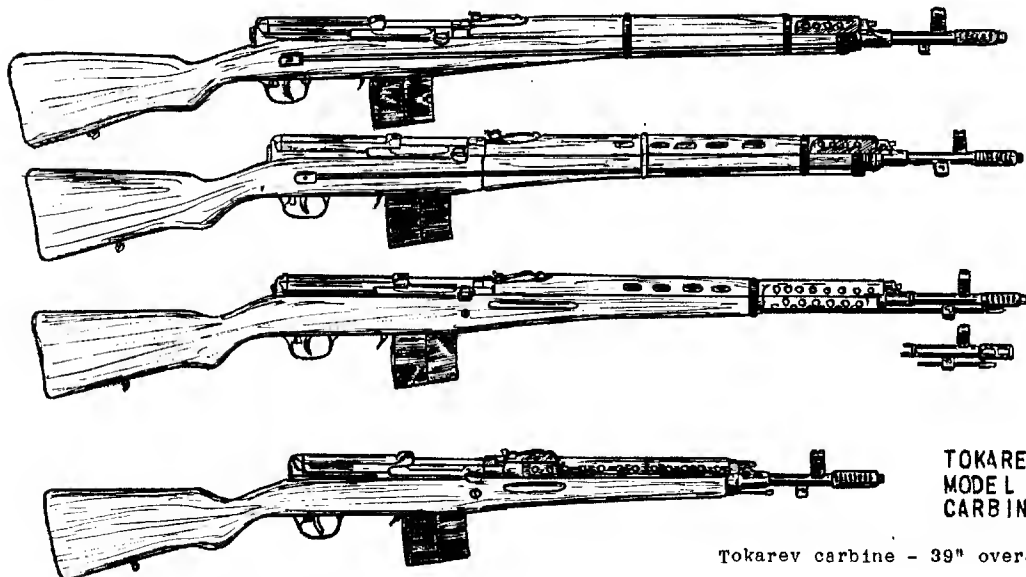
The Simonov Model 1936 rifle was Russia's first semiauto issue rifle. About 4 feet long with approximately 24" barrel, it was fed from a 15-round box magazine which could be replaced or recharged from standard 5-round rifle chargers. The arm was reportedly fitted with a full-auto switch. Its use was very limited although it did see line service.

SIMONOV 1936 rifles are gas-operated. The head of the bolt 2 passes through the center of a hollow locking block located at 5, whose lower bar engages locking recess 2A. powder gases exit through nozzle 3, entering and driving back the cup (dashed lines) and operating rod, also the operating slide 4. The slide carries back the upper bolt 1 and then cams down the locking block out of engagement with the bolt. A "timing lock" secures 1 in its rearward position on 2 during recoil and counter-recoil. As bolt 2 returns forward, its head passes through the locking block. When 2 is fully forward, 1 is released to continue forward, camming surface 1A forcing up the upper bar of the locking block, bringing its lower bar up into recess 2A.



The operating slide of the Simonov 1936 is assembled under the rear sight, whose mounting base passes through a recess in the middle of the slide. This view shows the general exterior appearance of the 1936 breech, including the sight (100-1500 meters), slide 4, upper bolt 1 and charger guide.

Phil Sharpe states that he was informed by a Major Shiskov, a Russian member of a special investigations team in Europe, "that Tokarev was an engineer who did the final development work on Simonov models". Comparison of the PTRS 1941 Simonov anti-tank rifle with the Tokarev 1938 and 1940 rifles is particularly interesting in the light of this statement.



ТОКАРЕВ

TOKAREV

MODEL 1938

SERVICE RIFLES

Caliber 7.62 mm Russian

The 1938 Tokarev has a long wood handguard above the barrel with only a short perforated metal guard at the front. The wooden stock is full-length, although service Model 1938s generally had a two-part stock. Cleaning rod on right side. Generally have eight-vent muzzle brake. Some with one-piece stock, some with six-vent brake may be early models, intermediate designs or wartime assemblies to use up available components.

ТОКАРЕВ

TOKAREV

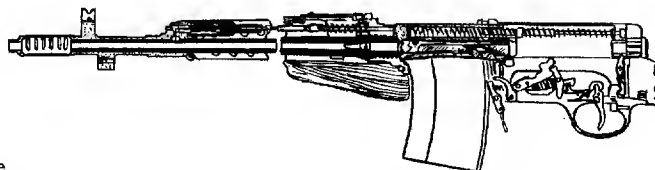
MODEL 1940

SERVICE RIFLE

Tokarev 1940 rifles have one-piece stocks shorter than those of the 1938s. A metal handguard below the barrel complements the shortened stock. The short upper metal handguard of the 1938s has been elongated in the 1940s, while the upper wood handguard has been shortened. Model 1940s have a folding magazine latch, most have the 6-vent brake although a special simplified brake design has been noted.

TOKAREV
MODEL 1940
CARBINE

Tokarev carbine - 39" overall



Tokarev rifles are generally about four feet overall with 24-3/8" barrels, are fed from 10-round detachable box magazines (which may be recharged on the gun from 5-round chargers) and are gas-operated on the nozzle-and-cup system. The operating rod (extending through the rear sight base) forces back the bolt carrier, which cams the rear end of the bolt up out of engagement with the cross-key in the receiver. Though Tokarev 40s are rated semi-automatic, there is an ancillary sear (ahead of and engaging the hammer near its axis) which is disengaged from the hammer by a plunger forced down by the rear end of the bolt as it locks. If the main sear is held out of its normal engagement with the head of the hammer, the ancillary sear ceases to be a safety measure only and becomes a means of full-auto fire. Full-auto Tokarevs have been reported.

SCOPES & BAYONETS

6

ОПТИЧЕСКИЙ ПРИЦЕЛ

RUSSIAN TELESCOPIC SIGHTS

P.E.-4X
P.U.-3.5X

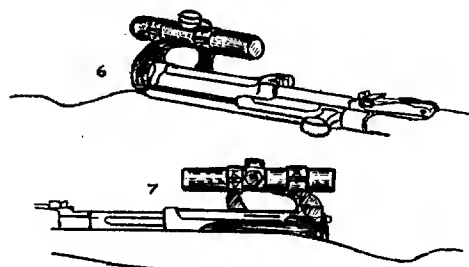
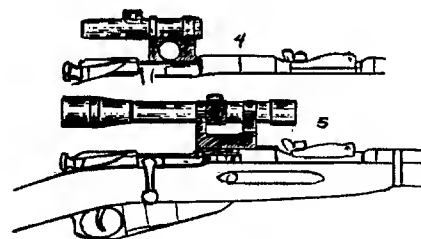
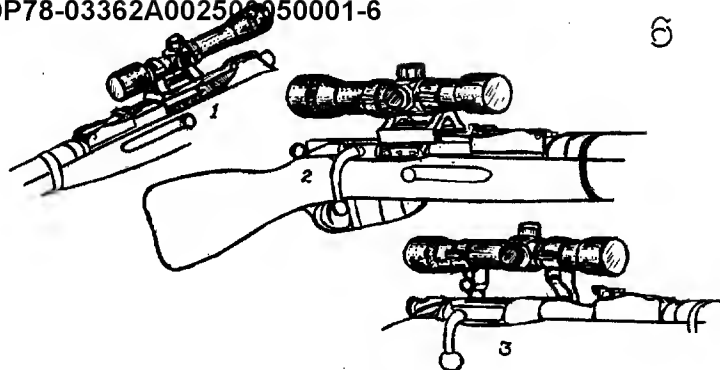
Considering the extensive pre-World-War-II activities of the Society for the Promotion of Defense, Aviation and Chemical Defense ("Osoaviakhim") in promoting, among other things, rifle marksmanship in the Soviet Union, it is not surprising that the Russians, during World War II, made much use of telescope-sighted rifles.

Before and during the early days of the war, sniping equipment consisted largely of selected rifles of the 1891/30 pattern with turned-down bolt handles. These were fitted with a standard two-ring mount carrying the large 4x PE telescope.

Subsequently, the 3.5x PU telescope came into general issue, although it certainly did not displace the PE model scope. Since the war, these telescopes have, theoretically, been returned to training and sport use, although a Degtyarov recently (September 1950) captured in Korea carries what looks very much like a scope on a special mount.

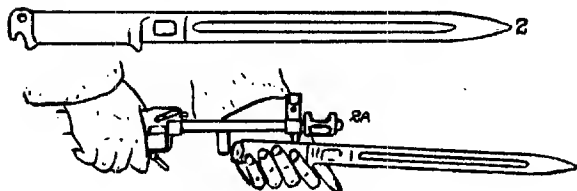
ОСОАВИАХИМ - Osoaviakhim - uses the TOZ rifle with PE scope as well as appropriate service arms.

Illustrations 1, 2 and 5 show the 4x PE scope in standard mounts, illustration 3 shows the PE in special mounts and illustration 4 shows the 3.5x PU in standard mount, all on the Model 1891/30 rifle. Illustrations 6 and 7 show the 3.5x PU scope on Tokarev Model 1940 autoloading rifle.



ШТЫК

RUSSIAN BAYONETS



RUSSIAN BAYONETS:

1. "Gran'paw" goes into his sixtieth year come 1951, and he seems to be going strong. Just as the basic Moisin rifle has outlasted the Simonovs and Tokarevs, thanks to Russian ammunition, so has the original bayonet its rivals of 1936, 1938 and 1940.
2. The long knife bayonet of 1936, designed exclusively for use with the Simonov. 2A shows the method of attachment: apparently they didn't trust the muzzle brake as a bayonet mounting. Blade 13", overall 18.3".
3. The short knife bayonet of 1940 attached in conventional fashion (see 4). This was the final development before reversion to the ancient pattern. Blade .945", 15.4" OA.
4. This was the long knife bayonet introduced with the Tokarev 1938, whose muzzle brake was apparently considered brawny enough to support a bayonet.

Abandonment of the autoloading rifles necessitated setting aside the bayonets adapted to them. Perhaps abandonment is too strong a word - and perhaps even a premature judgement. Garrett Underhill mentions their withdrawal from service, and it is reportedly that Russian ammo which was to blame. Perhaps improved ammunition will bring the rifles and their bayonets back out of the cosmoline.

Anyway, the return to the old bayonet isn't a total loss. Besides being a bayonet, it was also a stacking hook, a screw-driver and a roasting spit.

Incidentally, this original type of bayonet was used with the Berdan rifles which preceded the Moinsins.

LEFT:

РУКЕЙНАЯ ГРАНАТА - ВГД / В - Винтовка Rifle
Г - Граната Grenade
Д - Дьяконов Dyakonov

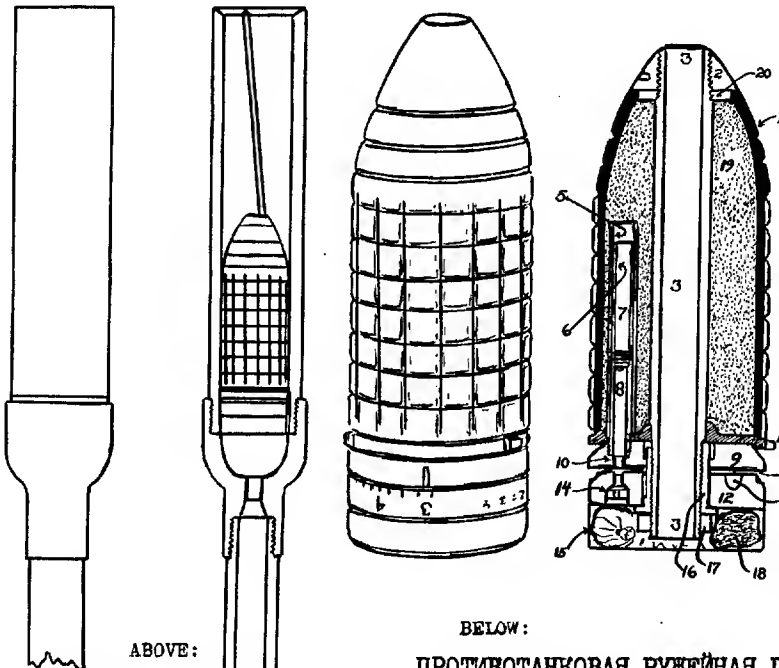
RIFLE GRENADE - VGD

Caliber 40.6mm - 1.598"
Weight of grenade: 5401 gr. *the designer
Weight of grenade with barrel: 6710 gr.
Length of grenade: 4.53"
Velocity w/o booster propellant charge: 177 f/s
Velocity with booster: 360 f/s
Range w/o booster: about 300 meters
Range with booster: up to 900 meters
Booster propellant: 38.6 gr.
Explosive charge: 772 gr. Trotyl (gray nose)

Other nose colors indicate:
(yellow) amatol (green) melinite
(red) Schneiderite (brown) ammonal

1-serrated casing. 2-nose. 3-bullet passage tube.
4-base plate (with 3 driving studs). 5-fuze tube.
6-detonator tube. 7-detonator compound. 8-delay composition. 9-upper time fuze section. 10-communicating composition. 11-compound disk. 12-lower time fuze section. 13-fuze compound (3-12 seconds optional delay). 14-igniter compound. 15-obturator cup. 16-connecting sleeve. 17-clamp nut (LH thread). 18-boost propellant. 19-explosive charge. 20-clamp nut.

The grenade is placed in the Dyakonov discharger with its driving studs engaging the riflings. On firing, the bullet passes through the center tube of the grenade, the propellant gases expanding into the discharger behind the grenade, where they ignite the booster propellant (if present) and the time fuze.



ABOVE:

BELOW:

РУКЕЙНАЯ МОУПТИРКА

RIFLE GRENADE LAUNCHER

ПРОТИВОТАНКОВАЯ РУКЕЙНАЯ ГРАНАТА - ВПГ / В - Винтовка Rifle

ANTITANK RIFLE GRENADE - VPG

П - Противотанковая Anti-tank
Г - Граната Grenade

Diameter: 2.36"
Length of head: 4.53"
Length OA: 17.9"
Weight: 23.98 oz
Charge: compressed granulated TNT with cavity.
Weight of charge: 5154 gr.
Color: green, some gray.

Range: 50-75 meters.
Penetration: 30mm armor.

1. Inertia firing pin and creep spring.
2. Detonator (includes "trizinat", barium nitrate, lead azide, "sulphur antimony" and tetryl).
3. Communicating composition or booster charge.
4. Explosive charge.
5. Cavity and 5A cavity liner.
6. Nose cover.
7. Casing.
8. Coupling.
9. Firing pin housing.
10. Rod.
11. Ring fin.
12. Safety pin and ring.

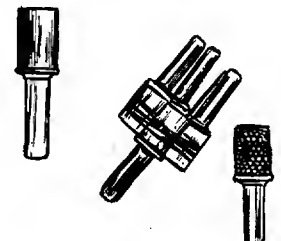
The grenade is fired from a standard rifle (including the autoloaders) using a special launching cartridge (ammunition: E). Special added sights are also reported, but photographs of the grenade in use don't show them: the gunner seems to be aiming on a strictly "by guess" basis. On firing, the rod slides through the ring fin assembly until spring dogs A engage annular groove B in rod, after which the fin accompanies the grenade.

BELOW:

РУЧНАЯ ГРАНАТА
HAND GRENADE

The hand grenade was a favorite weapon of Russian troops, especially the off-again-on-again "paratroops". The standard model was very similar to the German potato-masher. Most had smooth casings, but some with frag serrations have been noted. A particularly pleasant idea was to tie four or five together and heave the hundle at a tank.

They also made use of bottles filled with inflammable liquids. A wad of combustible material attached to the neck of the bottle was ignited, and the bottle was then thrown at its target. When the bottle broke, the party warmed up fast.



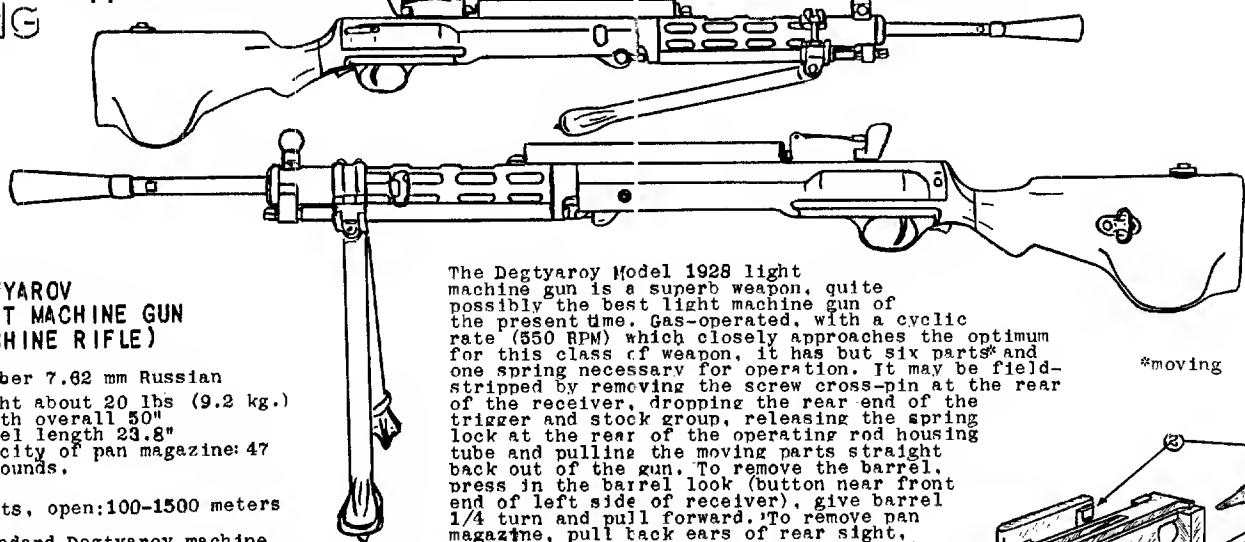
Use of rifle grenades was limited during the war. The VGD could not compete with trench mortars, and its rotary stabilization meant that it was seldom flying point-on at the end of its trajectory: since the casing fragments were to a large extent projected in a plane normal to the axis of the projectile, its effectiveness was somewhat unpredictable. Also, it required the carrying of an auxiliary discharger, and since minimum fuze time was three seconds with a minimum initial velocity of 177 f/s, it was not very useful on nearby targets. Lacking an impact fuze, its all-around usefulness was rather limited.

The VPG was also a limited-purpose weapon, being strictly armor-piercing. It had, of course, some blast effect, but this was apparently regarded as incidental. Its range was quite short and recoil must have been a very interesting problem for the gunner. Since its armor-piercing effectiveness even within its limited range was no greater than that of the PTR weapons, which had a much greater range, the VPG was accorded a secondary role. Had it been provided with a serrated metal casing to give some fragmentation effect, it might well have become a most effective dual-purpose weapon.

It is interesting to note that this grenade uses a shaped or hollow charge. The Russians have never been laggards in the field of weapons.

LMG

8



DEGTYAROV LIGHT MACHINE GUN (MACHINE RIFLE)

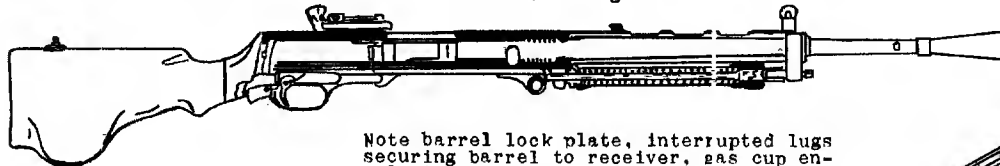
Caliber 7.62 mm Russian
Weight about 20 lbs (9.2 kg.)
Length overall 50"
Barrel length 23.8"
Capacity of pan magazine: 47 rounds.

Sights, open: 100-1500 meters

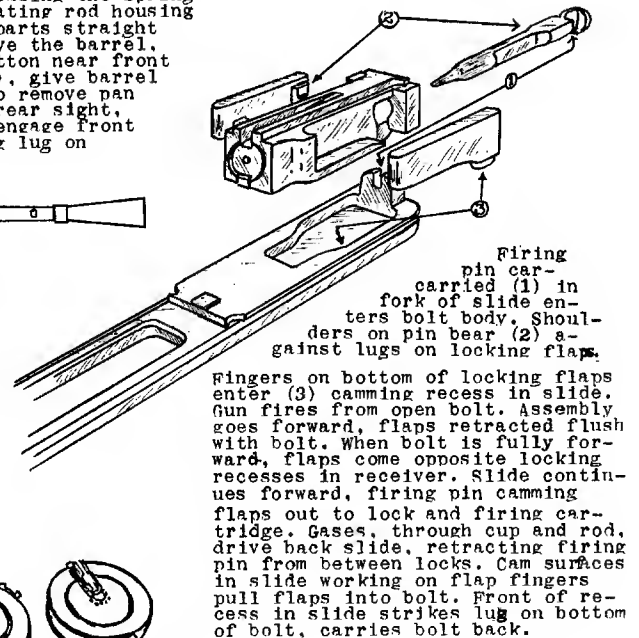
All standard Degtyarov machine rifles and/or light machine guns are gas-operated and air-cooled.

The Degtyarov Model 1928 light machine gun is a superb weapon, quite possibly the best light machine gun of the present time. Gas-operated, with a cyclic rate (550 RPM) which closely approaches the optimum for this class of weapon, it has but six parts* and one spring necessary for operation. It may be field-stripped by removing the screw cross-pin at the rear of the receiver, dropping the rear end of the trigger and stock group, releasing the spring lock at the rear of the operating rod housing tube and pulling the moving parts straight back out of the gun. To remove the barrel, press in the barrel lock (button near front end of left side of receiver), give barrel 1/4 turn and pull forward. To remove pan magazine, pull back ears of rear sight, lift rear end of pan and disengage front fingers of pan from attaching lug on barrel guard.

*moving



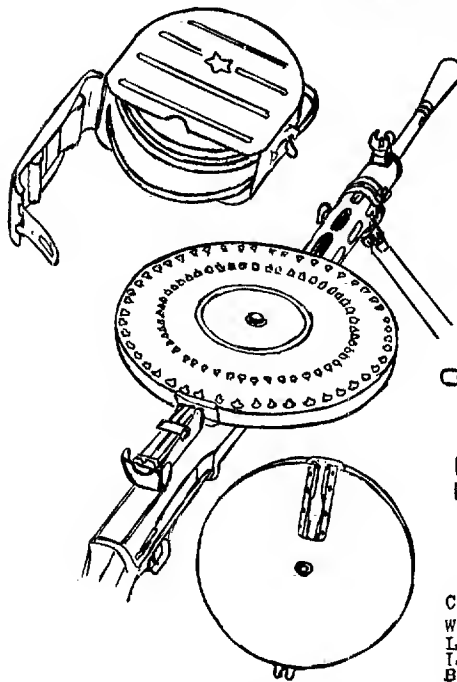
Note barrel lock plate, interrupted lugs securing barrel to receiver, gas cup enveloping gas nozzle, driving spring compressed between gas cup and spring lock.



Firing pin carried (1) in fork of slide enters bolt body. Shoulders on pin bear (2) against lugs on locking flaps.

Fingers on bottom of locking flaps enter (3) camming recess in slide. Gun fires from open bolt. Assembly goes forward, flaps retracted flush with bolt. When bolt is fully forward, flaps come opposite locking recesses in receiver. Slide continues forward, firing pin camming flaps out to lock and firing cartridge. Gases, through cup and rod, drive back slide, retracting firing pin from between locks. Cam surfaces in slide working on flap fingers pull flaps into bolt. Front of recess in slide strikes lug on bottom of bolt, carries bolt back.

Spring nose turns, enters groove in rod while engaging a tooth on rear of gas cup, preventing its unscrewing.
Safety blocks only trigger.



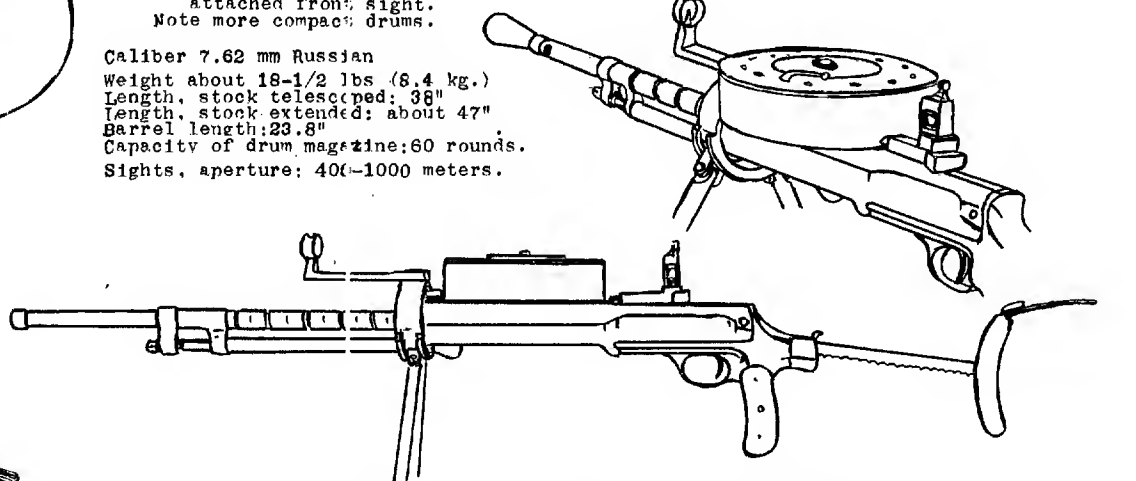
DEGTYAROV TANK MACHINE GUN D/T M/G, GROUND MODIFIED

Ground type has bipod and attached front sight.
Note more compact drums.

Caliber 7.62 mm Russian
Weight about 18-1/2 lbs (8.4 kg.)
Length, stock telescoped: 38"
Length, stock extended: about 47"
Barrel length: 23.8"
Capacity of drum magazine: 60 rounds.
Sights, aperture: 400-1000 meters.

ABOVE: Details of Degtyarov M1928, especially of 47-round pan magazine and three-pan carrier. Pans are also often carried in a sack.

BELOW: Degtyarov 1928 mounted on motorcycle side-car. Note rigid bipod bracing. This is available on the regular ground gun.

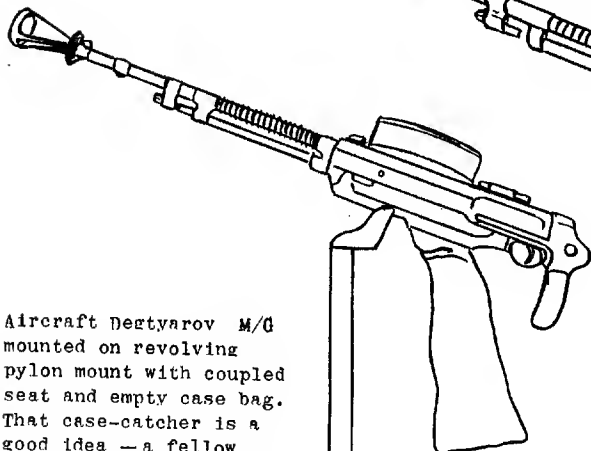
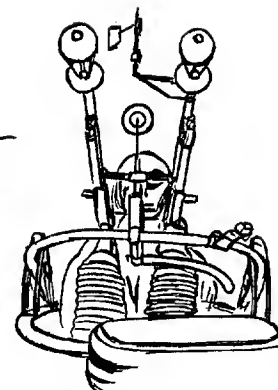


The flanged barrel of the unmodified tank machine gun illustrated is apparently no longer common. The ground modification, used during World War II (with and without flash hiders), has reappeared in the

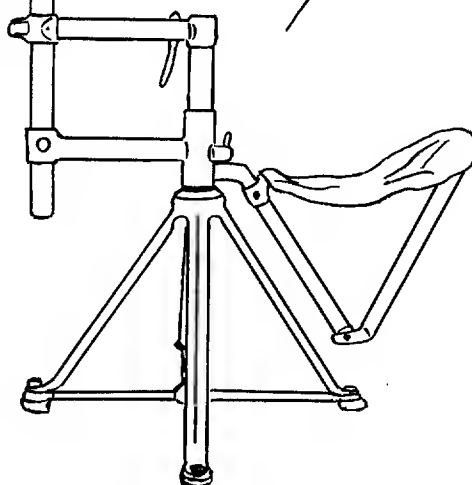


DEGTYAROV AIRCRAFT MACHINE GUN

Caliber 7.62 mm Russian
Weight about 16 lbs.
Length: 39" -- Barrel: 23.8"
Drum capacity: 60 rounds



Aircraft Degtyarov M/G mounted on revolving pylon mount with coupled seat and empty case bag. That case-catcher is a good idea -- a fellow could get an awful face-full of hot brass out of that thing. The absence of sights indicates tracer fire control.



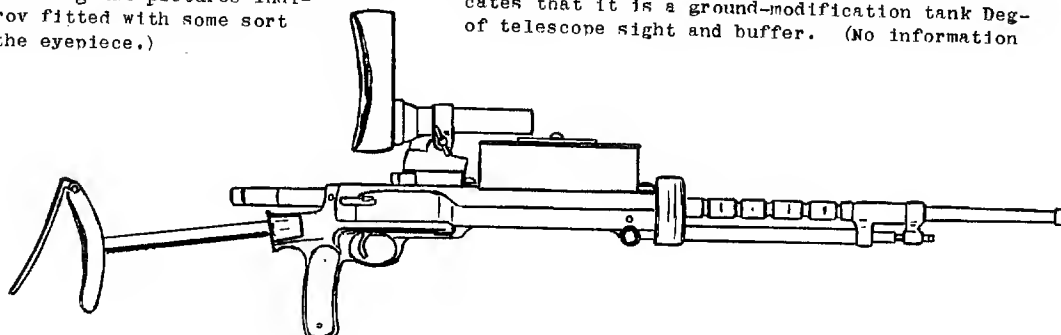
Above... Twin-mounted aircraft Degtyarovs (drums removed). This was a popular arrangement in the middle Thirties. Note the Scarff ring mount. Compare it with -- Left...

Twin-mounted aircraft-type Degtyarovs mounted as anti-aircraft weapons on a Soviet torpedo boat. Note the identical mountings and cartridge case disposal chutes. Obviously, outmoded aircraft equipment (even including ring and vane-front sights) -- replaced by the Schkass and Schvak weapons -- was switched over and made naval issue. The only change appears to be the substitution of large flash-hiders for the original Degtyarov muzzle brakes.

Interestingly, cyclic rate of all Degtyarovs, even the aircraft models, is rated around 550 rounds per minute. The aircraft versions are apparently arranged so that the cocking handle can be made accessible from either side; standard Degtyarovs have the cocking handle on the right.

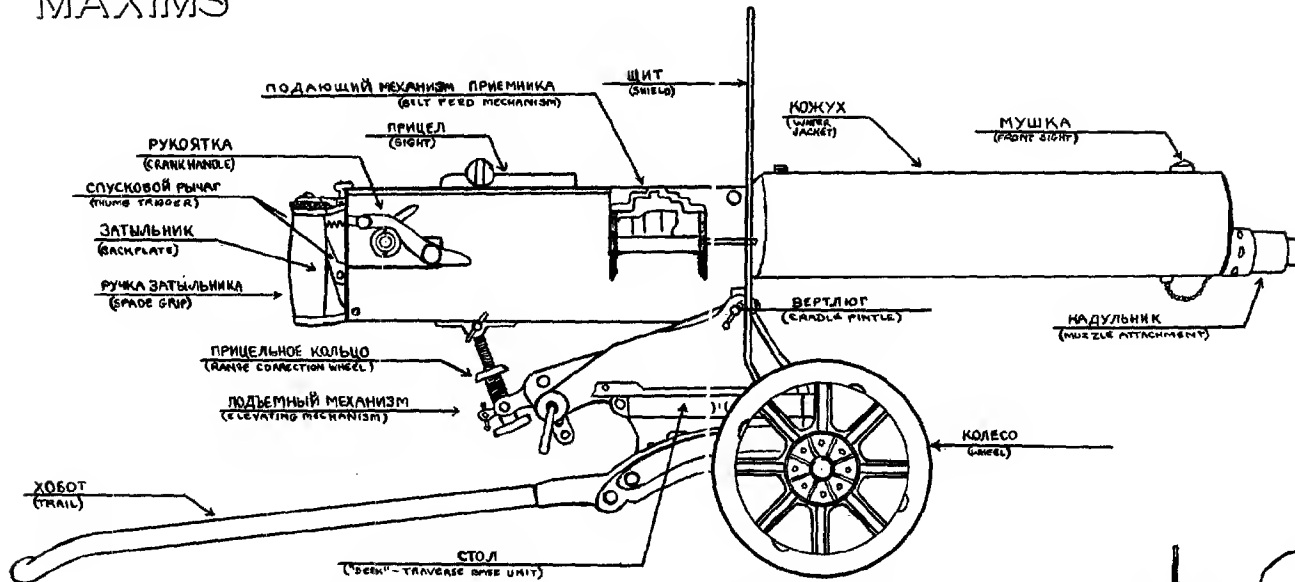
A WORLD WAR III DEGTYAROV

THAT got your attention! The Degtyarov illustrated below was captured in Korea. Examination of the original pictures indicates that it is a ground-modification tank Degtyarov fitted with some sort of telescope sight and buffer. (No information



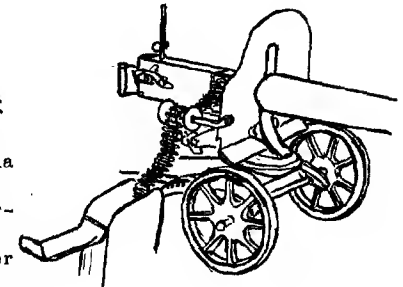
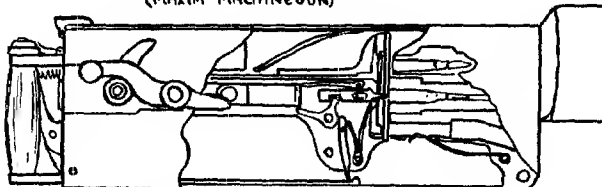
MAXIMS

10



MAXIM 1905/1910 MACHINE GUN ON SOKOLOV MOUNT

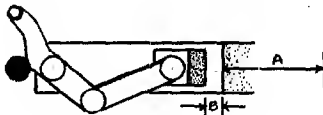
After the early Russian use of Gatling guns ("Gorloffs", after General Gorloff, who supervised American production of Gatlings in caliber 10.86mm Berdan), extensive Russian use of machine weapons might easily have been taken for granted. Russia was the first European nation to issue machine weapons. She continued to lead after "machine gun" lost the meaning of a hand-cranked cartridge-eater and became the automatic weapon of today. Russia bought and issued Maxim guns in time for them to see some little service in the Russo-Japanese War. She further acquired some Madsen machine-rifles and issued them during the Russo-Japanese episode, one of the earliest recorded instances of the machine rifle in service. In that war, Maxims on high tripods were good targets, which led Colonel Sokolov to design his combination wheeled mount. Russia undertook production of her own machine guns with the 1905 Maxim at Tula Arsenal. The 1905 had gun-metal (bronze) water-jacket and other parts, weighing 68-1/2 pounds dry. The redesigned 1910 was mechanically the same as the 1905, but steel replaced gun metal with a resulting reduction in weight to 40 pounds dry. A filled water jacket, in either case, increased the weight by some 8-1/2 pounds. Early patterns had a roller attached to the shield to guide the belt....a friend of mine who participated in the Spanish Civil War told me: "You never appreciate that shield until you hear machine-pistol bullets hitting it!"

ПУЛЕМЕТ МАКСИМА
(MAXIM MACHINEGUN)АВТОМАТИЧЕСКИЙ ЗАТВОР
(AUTOMATIC BREECH MECHANISM)

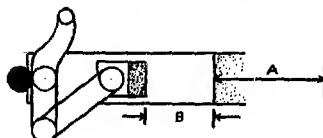
The 1905 and 1910 Maxims are of the earlier Maxim design: crank handle swinging forward for manual operation, downward-breaking toggle and generally massive appearance. Maxims of the 1905 pattern generally have smooth (bronze) water jackets and muzzle recoil boosters of the type shown above. Maxims of the 1910 pattern generally have corrugated water jackets, but may have recoil boosters of the original type, although a recoil booster of different design (resembling a small keg) was issued for a time. Front and rear sights of 1905/1910 Maxims are offset to the left.

This cutaway view of the Maxim breech brings to mind the fact that the Russians have made some little use of "cutaway" training Maxims for instructing recruits.

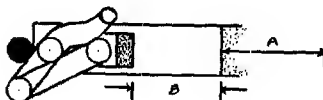
The Maxim action is the oldest continuously used machine (or automatic) gun action. It should, therefore, be unnecessary to add that it is also one of the best actions ever designed. At left, the Maxim toggle-joint action is shown closed and locked, the pins of the toggle in line and the cam surface of the crank resting against the cam roller (solid black). "A" represents the distance from the breech end of the barrel to a fixed point on the non-recoiling portion of the gun, while "B" indicates the distance from the breech end of the barrel to the breech face of the bolt.



As the gun is fired, barrel and bolt recoil together, "A" begins to increase. Cam surface of crank handle rides over fixed cam roller, which forces up tail of crank, "breaking" toggle joint and beginning withdrawal of bolt from barrel (distance B).

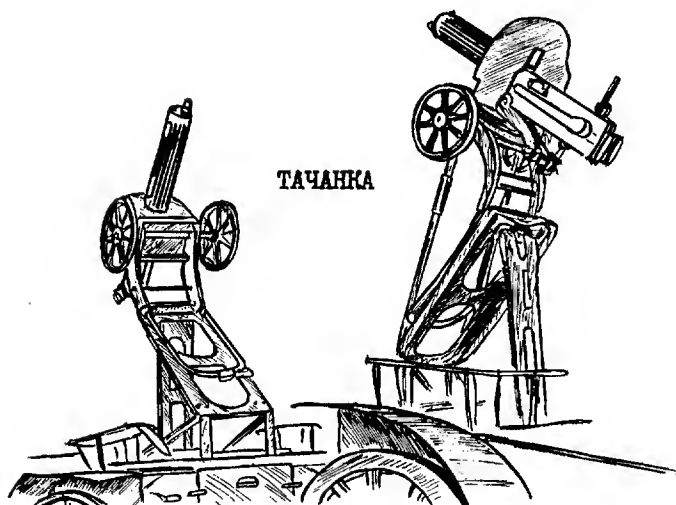


Continued recoil (A) forces further rotation of crank and rear link of toggle, increasing "B". At left, end of recoil has been reached. The "zero point" of the crank cam has reached the fixed roller.



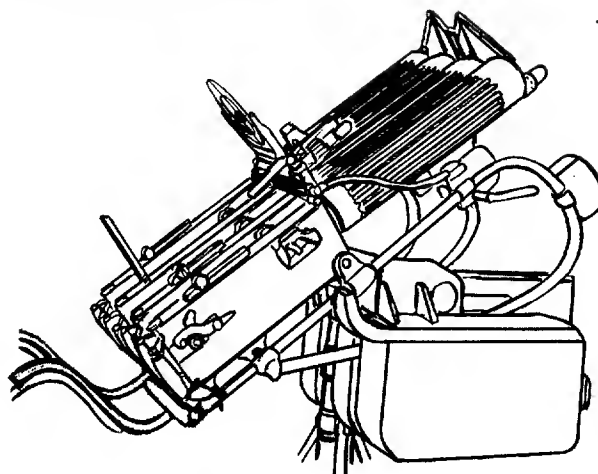
The toggle system has a little momentum of its own, however, and continues to open even though recoil of the barrel has been stopped ("B" continues to increase). This continued rotation brings the forward extension of the crank against the fixed roller, and the camming action of this forward extension against the roller cooperates with the fusée spring to start the barrel forward again.

The fusée spring is a tension spring hitched to a chain wrapped around the crank pin of the rear toggle link. It is stretched when the barrel and other parts recoil and when the "breaking" toggle winds the chain further around the pin. Thus it tends to pull the toggle joint back into its closed, locked position.

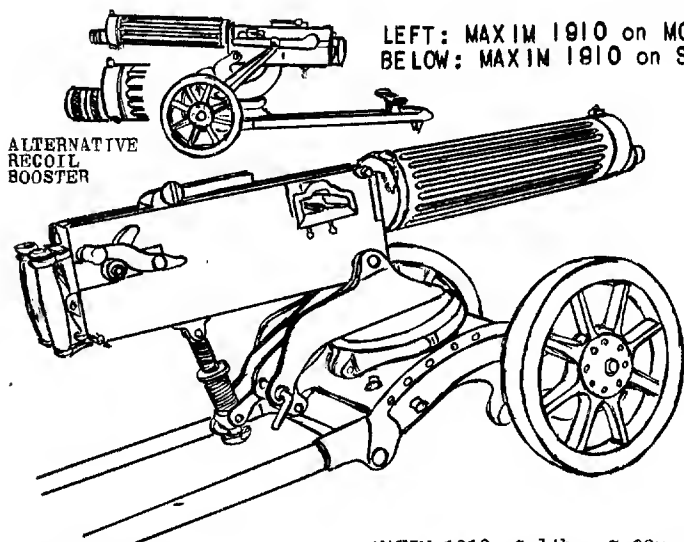


TACHANKA

TACHANKA - two views of the horse-drawn machine-gun cart. They wrote a song about this item, by the way. 1910 Maxim and Sokolov mount, wheels and all, are hitched into the folding frame atop the cart. These are swung up for AA fire. (Note minor differences in construction.)



MODEL 1931 Quadruple AA Mount for Model 1910 Maxim MG. Note ammo boxes placed parallel with guns and with guide tubes built into their lids to lead ammo belts to guns. Note shoulder harness, also counter-balances (weights on frame under water jackets). Note AA sight. Weight, without guns etc.: 515 lbs. Weight, complete: 1014 lbs. Traverse: 360 degrees. Elevation: +82 degrees. Depression: -10 degrees.

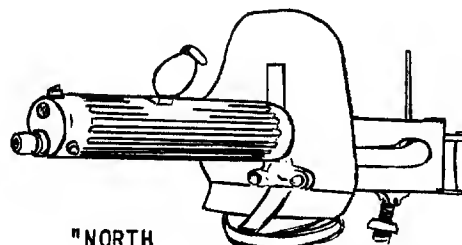


LEFT: MAXIM 1910 on MODEL 1931 MOUNT
BELOW: MAXIM 1910 on SOKOLOV w/o SHIELD

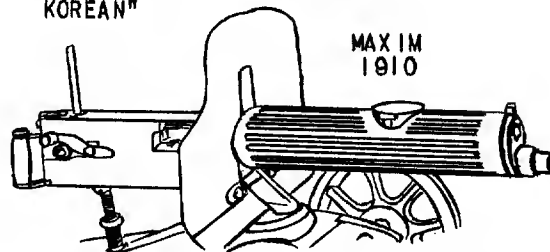
ALTERNATIVE
RECOIL
BOOSTER

MAXIM 1910: Caliber 7.62mm Russian
Weight: 40 lbs.
Length: 43"
Barrel length: 28-3/8"
Capacity of belt: 250 rd.
Sights: (Old) 400-3200 paces.
(New) to 2200 meters.
Cyclic: 500 RPM
Cooling: water
Operation: recoil

1931 MOUNT: weight: 77 lbs.
Like the 1938 mount for the 1938 heavy MG (g.v.), the 1931 mount may be stripped of its wheels and the trail opened to form an AA tripod.

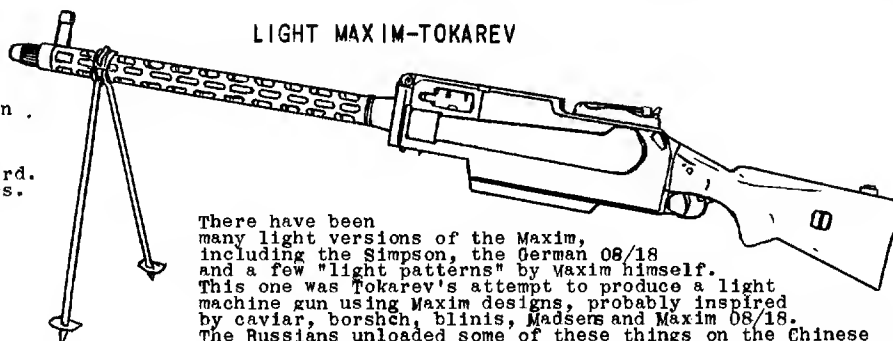


"NORTH
KOREAN"



MAXIM
1910

Development seldom stands still, and even after forty years they're still working on the 1910 Maxim. The "North Korean" version has a trapdoor atop the water jacket for the purpose, apparently, of facilitating the refilling of the jacket.



LIGHT MAXIM-TOKAREV

Caliber 7.62 mm Russian
Weight: 28.6 lbs
Length: 51.6"
Barrel: 23-3/8"
Capacity of belt: 250 rd.
Sights: 200-2500 meters.
Cyclic: 500 RPM

Cooling: air
Operation: recoil

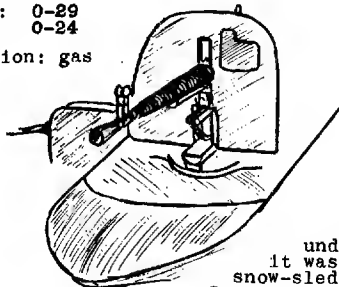
There have been many light versions of the Maxim, including the Simpson, the German 08/18 and a few "light patterns" by Maxim himself. This one was Tokarev's attempt to produce a light machine gun using Maxim designs, probably inspired by caviar, borshch, blinis, Madsers and Maxim 08/18. The Russians unloaded some of these things on the Chinese during the Japanese invasion. The design is really not at all bad, but the gun must have been subject to overheating.

ИВЛЕМЕТ осп. 1939

MACHINE GUN, Model 1939

Caliber 7.62 mm Russian
 Weight: 32 lbs.
 Length: 46"
 Barrel: 28-3/8"
 Belt (fabric or metal): 250 rounds
 Cyclic (adjustable)-
 low: 500-600 RPM
 high: 1000-1200 RPM
 Cooling: air
 Sights: 0-29
 0-24

Operation: gas



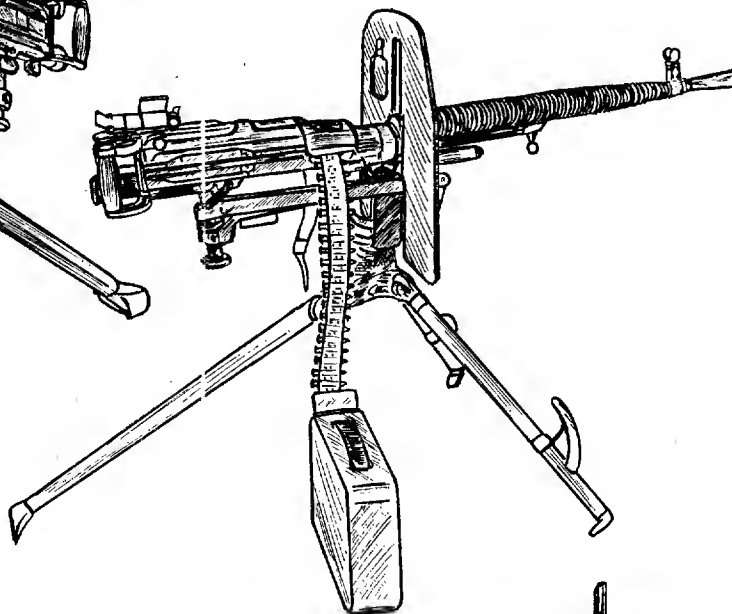
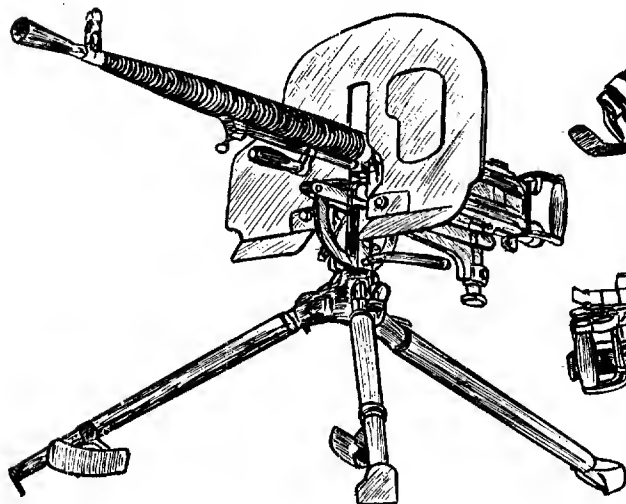
СТАНОК осп. 1939

MOUNT, Model 1939

Weight, w/o shield: 25 lbs.
 Weight, w. shield: 42 lbs.

The Model 1939 was usually seen on a tripod mount, but in winter, under suitable conditions, it was mounted on one of the snow-sledges favored by the Russians...complete, of course, with shield.

The Model 1939 is sometimes referred to as the "medium Degtyarov", since it is gas-operated and uses the Degtyarov locking-flap system.



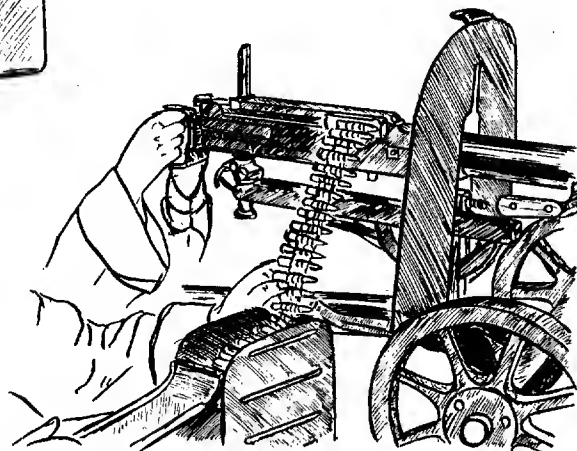
In spite of many seemingly obvious advantages, the Model 1939 machine-gun was used very little in the war which broke over "neutral" Russia late in June 1941. Perhaps the belt-feed system overtaxed the operating power available, perhaps the generally poor Russian service ammunition did not permit an otherwise good weapon to show its good points...in any case, "heavy" Maxim and Degtyarov machine-rifles had to carry the load.

In 1943 the (sometimes called) Gorunov appeared. Tagged the Model 1943, external characteristics seem to indicate that it uses a breech mechanism similar to that of the 1939 but has an improved belt feed. Air-cooled, it has an unribbed barrel. Reports on its use have been extremely rare - one wonders: are they holding it back or did they throw it out?

ИВЛЕМЕТ осп. 1943

MACHINE GUN, Model 1943

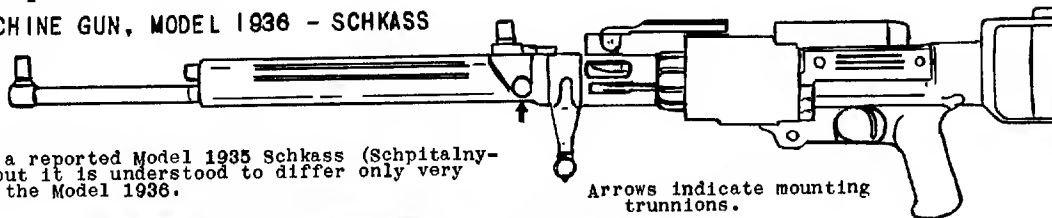
Caliber 7.62 mm Russian
 Gas-operated, air-cooled,
 belt-fed.
 Generally similar to 1939 but
 with improved action and belt
 feeding system.
 Note modernized wheeled mount
 and retention of shield.



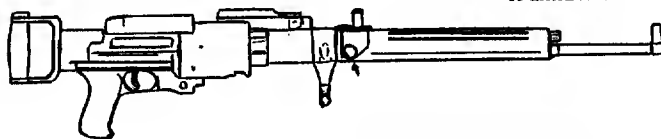
АВИАПЛЕТЕТ оор. 1936 - ШКАС

AIRCRAFT MACHINE GUN, MODEL 1936 - SCHKASS

There is also a reported Model 1935 Schkass (Schpitalny-Kamourutsky) but it is understood to differ only very slightly from the Model 1936.



Arrows indicate mounting trunnions.

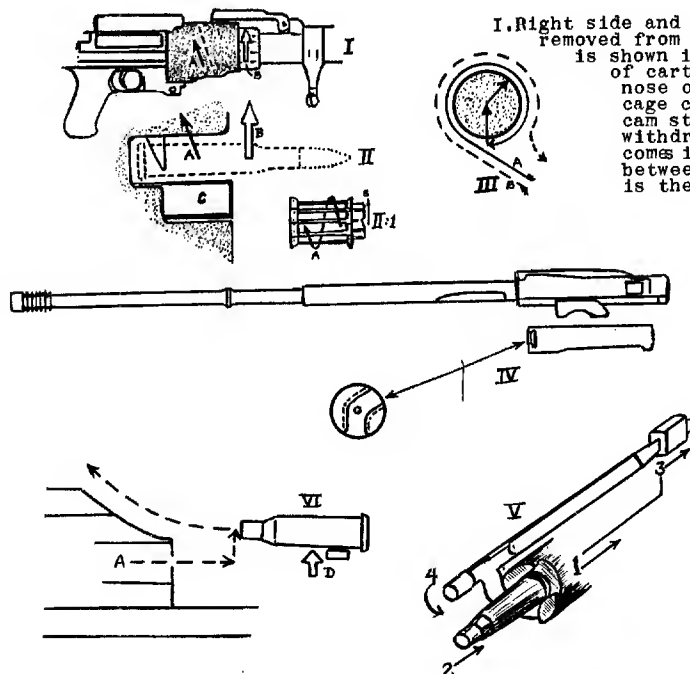
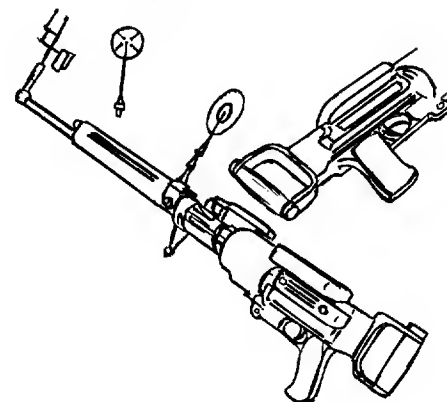


Do not mistake the assembly collar handle for a mounting pintle.

Below: two views of the Schkass flexible gun and sights.

Caliber 7.62mm Russian (special aircraft loads)
 Operation: gas
 Cooling: air
 Weight: 23.2 lbs.
 Length: 37.8"
 Barrel: 23.8" (longer barrels have been noted)
 Belt: metal aircraft type, probably dis-link
 Cyclic: 1800 RPM
 Sights: sight mounts provided on gun, sights attached as dictated by use.

This remarkable little weapon is, in design, one of the best aircraft guns ever built. The ultra-simple action (which rather resembles the Czech Model 1930), the unique feed system, the virtually unbreakable extraction T-slot, the tube ejection mechanism and the fluted chamber all combine to give the arm a cyclic rate in excess of that of any other single-barreled production-model automatic weapon. They further combine, although this may be incidental, to minimize ammunition difficulties.



I. Right side and II. bottom views of Schkass feed mechanism. Feed cage is removed from II, to permit view of feed port and nose of feed cam, and is shown in I:1. III. diagrammatic front view. Arrow A shows path of cartridge. Arrow B, path of belt. Base of cartridge engages nose of feed cam as belt is inserted in gun. Rotation of feed cam carries belt and cartridges around receiver, helical feed cam strips cartridges backward from belt. As cartridge is fully withdrawn from belt, it (and its compartment in the feed cage) comes into register with feed port C, when it is forced inward between the bars of the feed cage into the bolt path. The belt is then diverted out of the gun.

IV. The working parts of the Schkass resemble those of the Czech M30 IMG (Brno). However, the Schkass bolt is roughly cylindrical, and instead of spring-loaded extractors it has a T-slot of the form illustrated. V. As the bolt (1) is unlocked and carried back by the piston and slide, it carries back the empty case (2) and the ejector operating block (3), which fits over the rectangular-section shank of the ejector (4). As bolt travel is almost completed (position shown here), the block passes around a "twisted" portion of the shank. Since the block can't rotate around its own axis, this rotation of the shank of the ejector forces an arm at the front of the shank to swing into the bolt path and to kick the empty up and to the left in the angled portion of the T-slot. VI. Arrow A shows the path of the empty case from the chamber, arrow D the movement of the ejection mechanism arm. As the case enters the angled part of the T-slot, its mouth comes into line with the ejection tube, and the forward movement of the bolt drives the empty into the tube, which is so designed as to lever the rim of the case the rest of the way out of the T-slot. (In left side view at top of page, mouth of tube is visible ahead of front of feed catch and above feed cage latch.)

The Schkass has been very widely used as an aircraft weapon since its introduction in the middle Thirties. It supplanted the aircraft models of the Degtyarov, which were then relegated to AA use on naval vessels and some of which were probably converted to ground and tank type weapons. The Schkass appeared in early free mounts and in the nose position of the ZKB26. The guns also appeared in twin mounts in the nose position of the SB series, notably the SB2 and SB3. The gun was used in the dorsal and ventral (turrets or) positions of the SB3 and was found in the dorsal turret of the DB3F. (The SBs were twin-engined, light, fast bombardment aircraft; the DBs were similarly twin-engined in the number noted but were designed for long-range work. The ZKB may be an incorrect designation for an early SB.) Oddly, the Schkass is not generally found as a free gun in heavier aircraft. It has been used as a fixed fuselage gun in the twin-engined Petlyakov PE2 attack bomber (with two, fixed and forward-firing), and this same aircraft may carry two as free guns. The various Shturmoviks (attack aircraft), especially the single-engined IL2 and IL10, may have two Schkass guns as fixed armament in the wings, supplementing the 20mm Schvak cannon. The Schkass, like so many other fine little rifle-caliber machine guns; is being retired as time goes by in favor of heavier armament except as an "aiming gun", providing a stream of tracer (to supplement regular sights) as an aid to directing the fire of heavier guns whose ammunition supply is necessarily more limited, and as an anti-personnel weapon in ground attacks. Of course, it still appears as a free gun in some of the

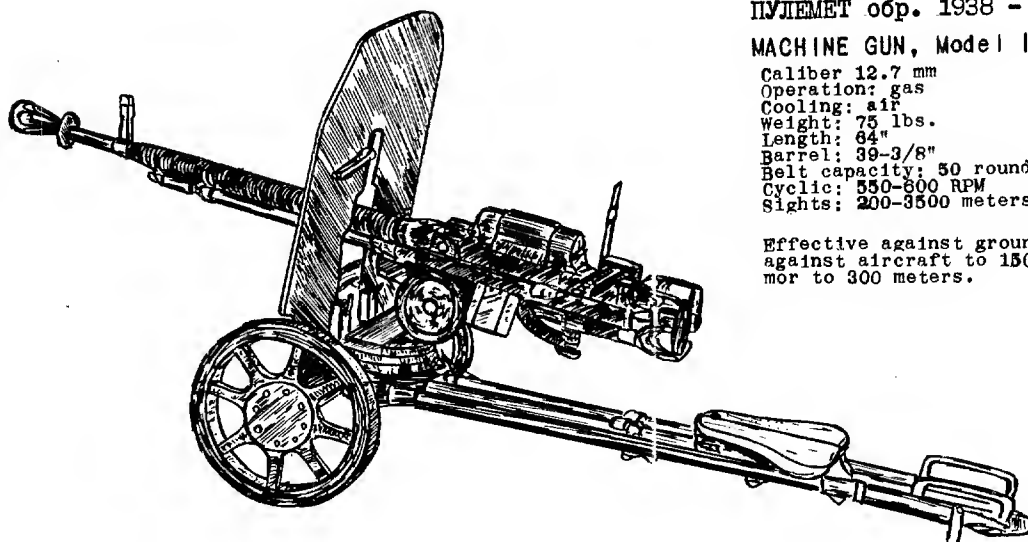


ПУТЕМЕТ обр. 1938 - ДК и ДМК

MACHINE GUN, Model 1938 - DK & D/Sh/K

Caliber 12.7 mm
Operation: gas
Cooling: air
Weight: 75 lbs.
Length: 64"
Barrel: 39-3/8"
Belt capacity: 50 rounds
Cyclic: 550-800 RPM
Sights: 200-3500 meters

Effective against ground targets to 3500 meters
against aircraft to 1500 meters and against armor to 300 meters.



СТАНОК обр. 1938
MOUNT, Model 1938

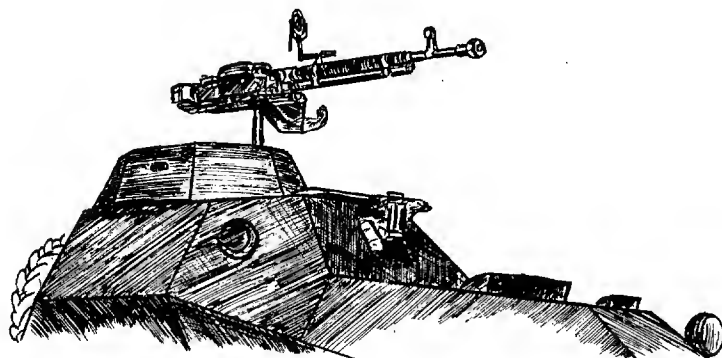
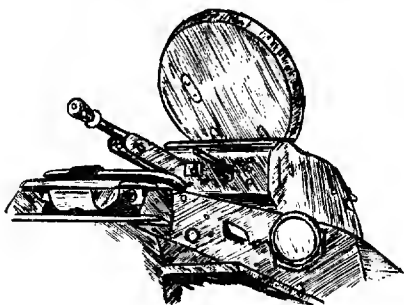
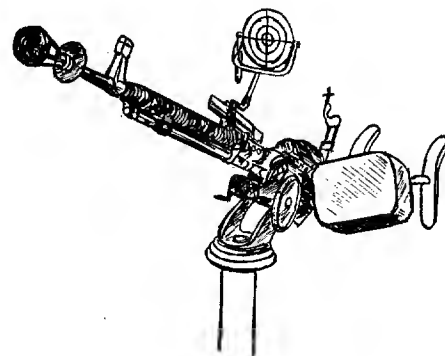
Weight, mount only: 234 lbs.
Weight, shield: 60 lbs.
Traverse, normal ground setting of mount: 120°
Traverse, mount set as tripod for AA use: 360°
Elevation, AA setting: + 85°
(for AA setting, see next page)

The "heavy Degtyarov" is a scaled-up 12.7 mm. version of the regular Degtyarov action (locking flaps). Unlike its little brother, the 7.62 mm. 1939 MG, the big 1938 gun was a considerable success and still continues in service. Not exclusively an Army weapon, it is shown (right) as mounted on shipboard for anti-aircraft use.

Although there's been little enough reported on the subject, it's rumored that the North Koreans held classes for their men in the use of U.S. weapons. It's logical: Communist activists are expected to know the use of their own weapons and those of their enemies (military, police and all the rest), and the North Koreans, of course, found added incentive in the fact that they expected to have a quick brawl with US-armed South Koreans.

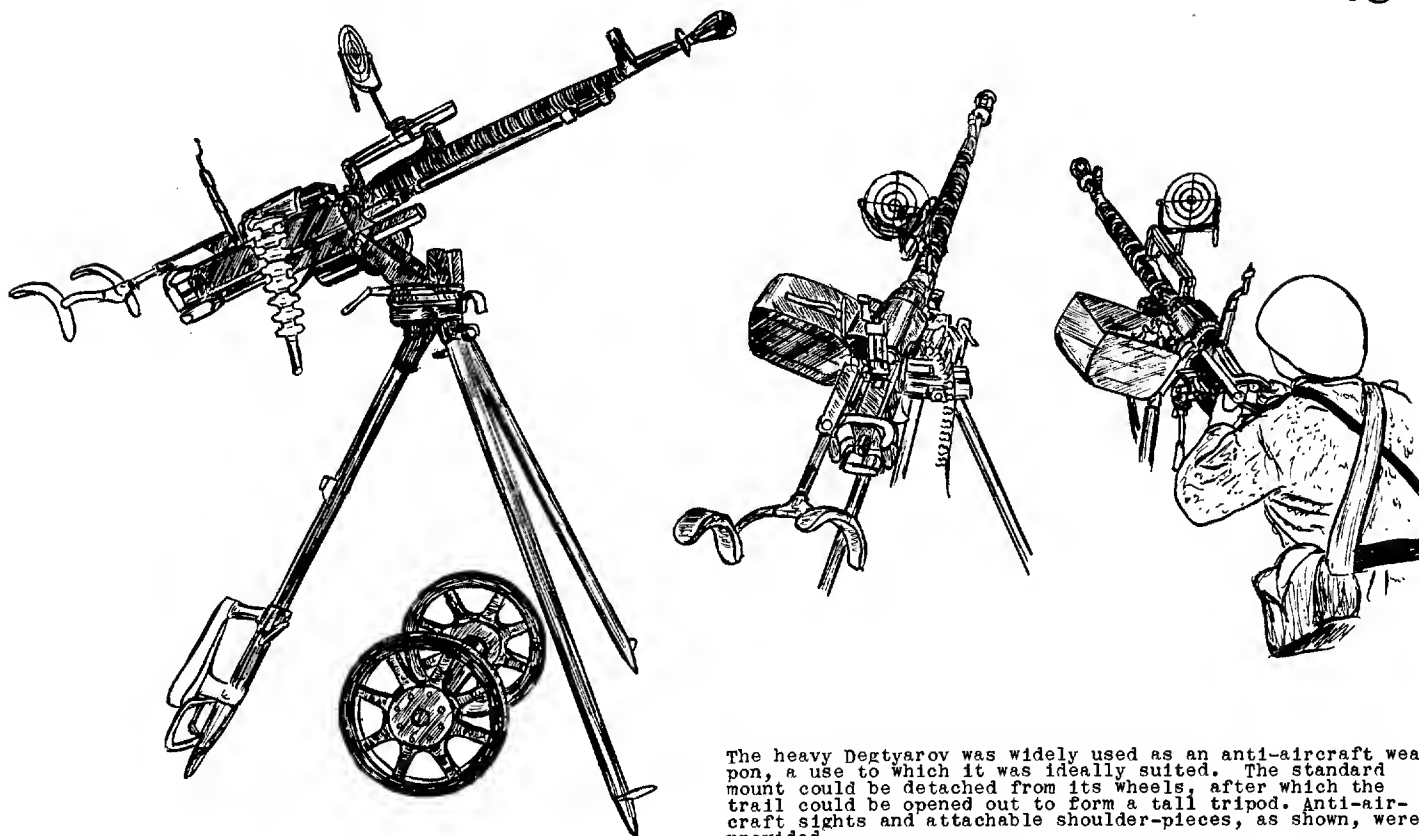
I wonder if the US armed forces - especially the enlisted men - are getting comparable instruction in the use of Soviet and other foreign equipment... the Germans were publishing extensive information on Russian weapons in 1941-2-3, and it's 1950-51, now... in 1943, in the Armorers Section, ORTC, (Aberdeen Proving Ground) (headed by Captain Goodwin and later by Lieutenant Chalmers), I set up - and wrote the lesson plans for, and wrote the instructional material for, and repaired or rebuilt the materiel for and trained other instructors for - a Foreign Materiel course. Hal Keenan kept it going after I got that big, beautiful diploma from the AUS. Maybe it saved some American lives... we did the best we could. Pardon the personal notes...

The services have had a seven-year start, anyway. I hope they've done something with it.



The D/Sh/K (Degtyarov and Shpaghin co-designed it) was armored and used, along with a coupled Degtyarov 7.62 mm tank MG, in the turret of the amphibious T40 "tank" (5 1/2-6 tons, 28 MPH on land, 4 MPH in water). This was later redesigned as the non-amphibious T60 with a 20mm A/C Schwak replacing the 12.7mm D/Sh/K... this is a tank? Apparently not, because it was retired shortly after its first war appearances in 1941.

The BA64 armored car, which was pictured as "new" in 1944, reappeared in the Korean War as a so-called "armored jeep" - everything needs a catchy tag, you know. One of these had a D/Sh/K flex-mounted above the "turret". Note the late-type muzzle brake.



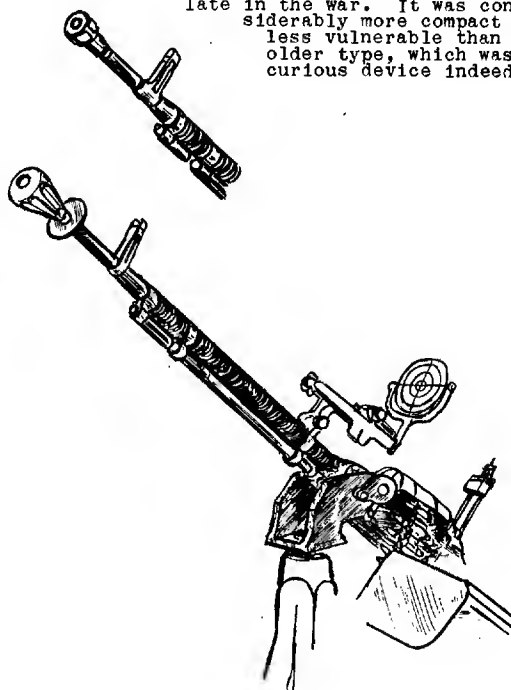
The heavy Degtyarov was widely used as an anti-aircraft weapon, a use to which it was ideally suited. The standard mount could be detached from its wheels, after which the trail could be opened out to form a tall tripod. Anti-aircraft sights and attachable shoulder-pieces, as shown, were provided.

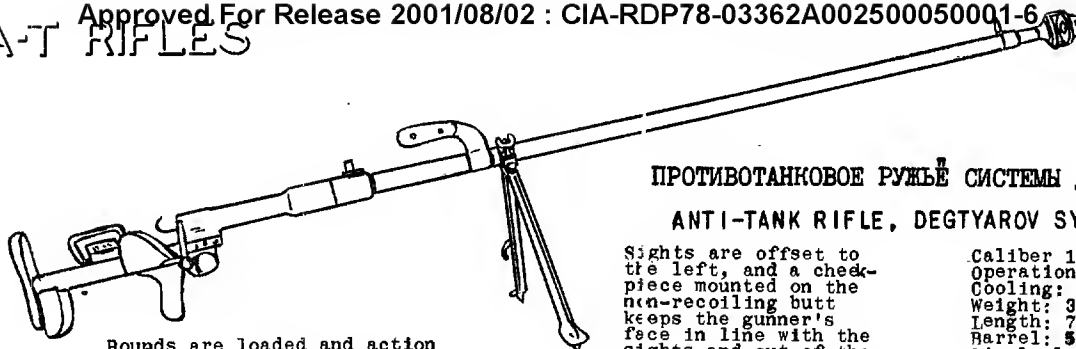
This was one gun which apparently was satisfactory and remained so. Unlike the Model 1939, it was not replaced during the war, and minor wartime modifications may be attributed to manufacturing problems rather than to defects in design. The increase in caliber and size, with the resulting increase in available operating power and in permissible weight of moving parts, probably helped to minimize difficulties resulting from inferior ammunition, although the quality of Russian ammunition tended to improve as caliber increased.

The big Degtyarov was mounted on almost anything big enough to carry it - or to tow it. At right is shown the gun as mounted on a Soviet armored train. This is either an early mount or one worked up in something of a hurry, since it has a generally crude appearance and lacks the recoil-absorbing features of the standard mounts.

The Degtyarov feed and belt for the 12.7mm cartridge are evidence of acceptance of the fact that combining gas-operation and belt feed in a large-caliber gun generally necessitates an attached feed mechanism (with belt to match) to remove rounds from the belt and present them for loading into the chamber. When you can start from scratch and design gun, feed, cartridge and belt, each with the others in mind, the design generally works out all right. (Perhaps the Model 1939 suffered from the fact that it had to be designed to use the older - Maxim - fabric belts?)

A new type of muzzle brake appeared late in the war. It was considerably more compact and less vulnerable than the older type, which was a curious device indeed.





ПРОТИВОТАНКОВОЕ РУЖЬЕ СИСТЕМЫ ДЕГТЯРЕВА - ПТРД 1941

ANTI-TANK RIFLE, DEGTYAROV SYSTEM - PTRD 1941

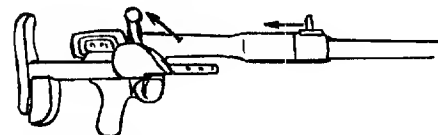
Sights are offset to the left, and a cheekpiece mounted on the non-recoiling butt keeps the gunner's face in line with the sights and out of the path of the recoiling parts.

Caliber 14.5mm Russian anti-tank
Operation: recoil, semi-manual
Cooling: air
Weight: 33-1/4 lbs.
Length: 79"
Barrel: 53" w/o muzzle brake
Single loader
Deliverable fire: 8-10 RPM
Sights: 400 meters

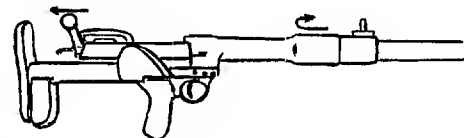
Rounds are loaded and action is closed and locked manually.



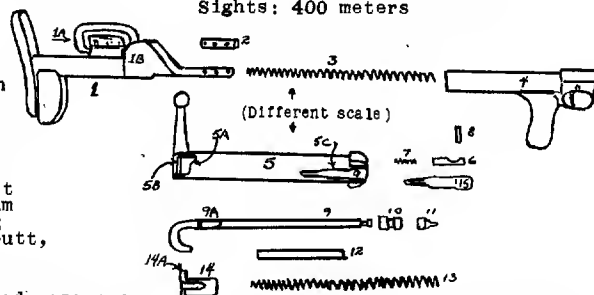
Gun, loaded with CLEANED, GREASED round of ammunition, is fired. Barrel, action and grip recoil as stock telescopes against spring.



As recoil continues, bolt handle rides up fixed cam mounted on non-recoiling portion of telescoping butt, unlocking bolt.



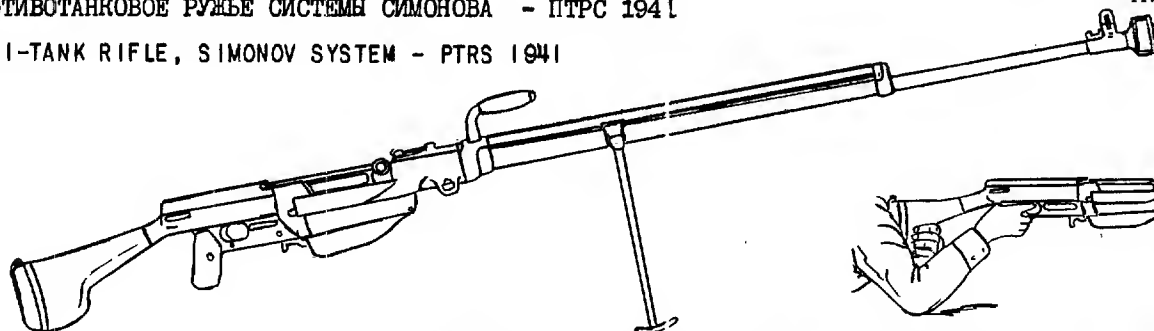
Heavy bolt and lubricated case continue to rear as barrel completes recoil and returns forward; case thus extracted is kicked out by spring ejector in bolt. A dry or dirty case, however, may fail to extract, so remember the grease!



1. Butt
- 1A. Cheekpiece
- 1B. Unlocking cam
2. Grip frame retainer
3. Recoil spring
4. Grip frame
5. Bolt (A: cocking cam, B: notch for 14A; C: extractor recess.)
6. Ejector (like Garand)
7. Ejector spring and 8 pin.
9. Firing pin body (A: cocking nose)
10. Firing pin connector
11. Firing pin nose
12. Firing pin limiting tube (prevents blowout of pin)
13. Firing pin spring
14. Spring retainer (A: lug)
15. Extractor

ПРОТИВОТАНКОВОЕ РУЖЬЕ СИСТЕМЫ СИМОНОВА - ПТРС 1941

ANTI-TANK RIFLE, SIMONOV SYSTEM - PTRS 1941



Caliber 14.5mm Russian anti-tank
Operation: gas
Cooling: air
Weight: 44 lbs.
Weight of detached barrel: 24-1/2 lbs.
Length: 83.8"
Barrel: 53" w/o muzzle brake
55-1/2" w. muzzle brake
Magazine capacity: 5 rounds (clip)
Deliverable fire: 15 RPM
Sights: 100-1500 meters
Sight radius: 51.6"

When weapon is carried as a one-man load, gunner carries it from handle set in socket as shown, when a two-man load, gunner switches handle to socket just behind front sight and loader grasps weapon by the butt. On the march, weapon breaks down into two separate units (barrel and butt/breech units).

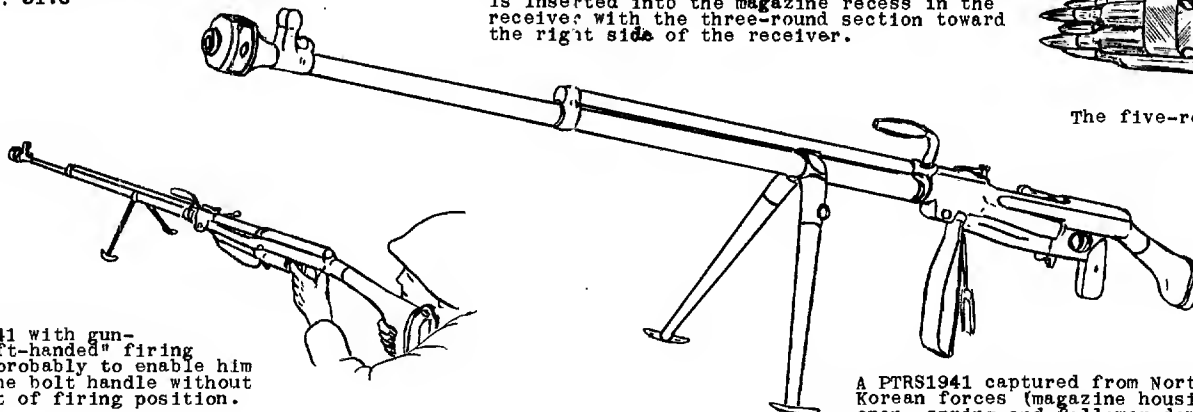
Loading: the magazine housing catch is disengaged from the magazine housing, permitting the housing to open and releasing the magazine spring and follower. A new clip of five rounds is inserted into the magazine recess in the receiver, with the three-round section toward the right side of the receiver.



Firing position.

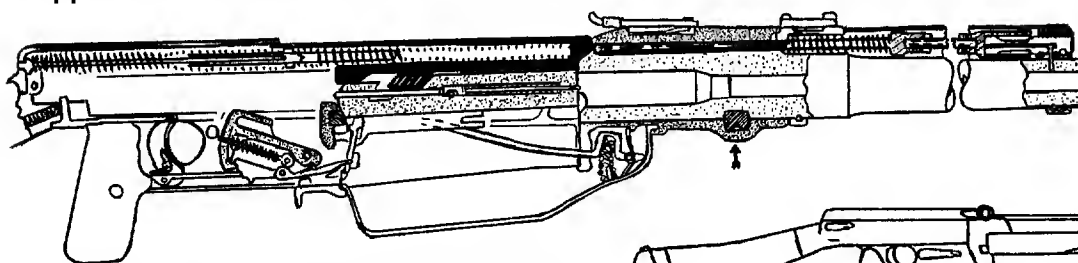


The five-round clip.

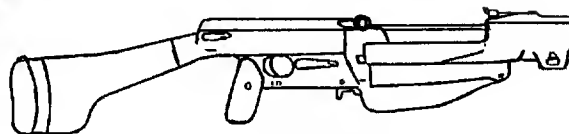


The PTRS 1941 with gunner in "left-handed" firing position, probably to enable him to reach the bolt handle without getting out of firing position.

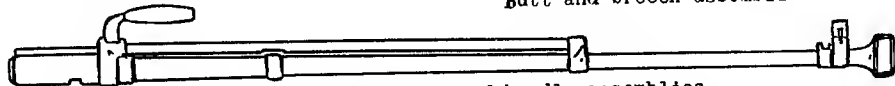
A PTRS 1941 captured from North Korean forces (magazine housing open, spring and follower down).



Sectional view of PTRS. Note essential similarity to the Tokarev series of rifles. Arrow indicates locking key which secures barrel assembly to breech mechanism.

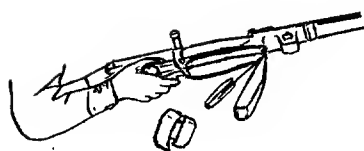


Butt and breech assemblies.

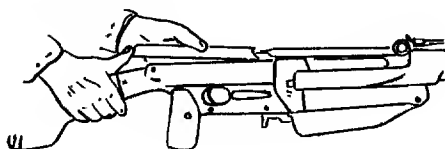


Barrel, sight, gas and handle assemblies.

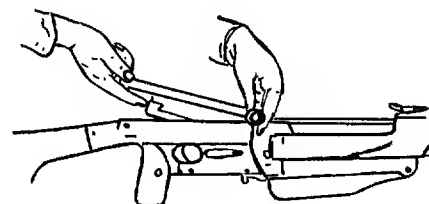
The PTRS breaks down into two loads for travel: the barrel and attached units weigh about 24-1/2 lbs., while the breech mechanism and attached parts weigh about 19-1/2 lbs..



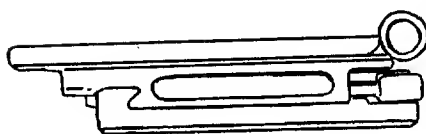
Unloading: the magazine housing catch, drawn to the rear, releases the magazine housing, which flops open, releasing the magazine spring and follower and allowing the clip (and any remaining cartridges) to drop out. This is, of course, a "first step" in disassembly, too.



The small cranked pin at the rear of the receiver body is rotated and withdrawn to the right, after which the housing, WHICH SHOULD BE SUPPORTED DURING REMOVAL OF THE PIN, may be eased off upward and to the rear. Watch that spring!

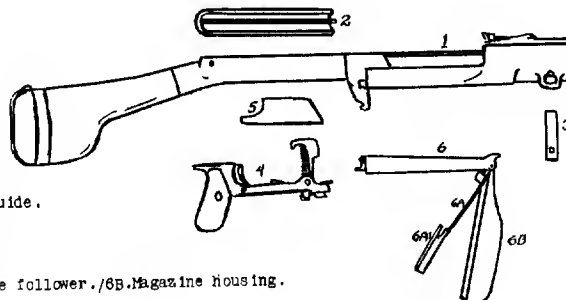


The bolt assembly is then drawn back and tipped upward out of the receiver.



Right: the stripped receiver, housing, lock and magazine assemblies and barrel locking key.

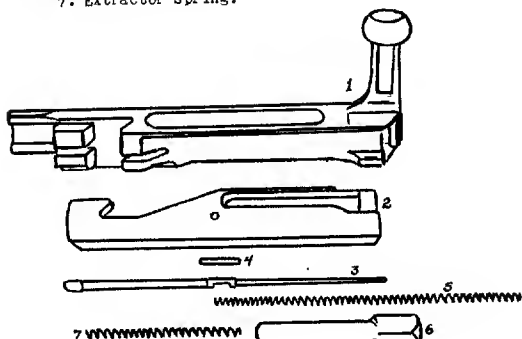
1. Receiver.
2. Housing and assembled spring guide.
3. Barrel locking key.
4. Firing lock assembly and grip.
5. Lock cover.
6. Magazine well.
- 6A. Magazine spring/6A1. Magazine follower./6B. Magazine housing.



Above: the bolt assembly (unlocked position).

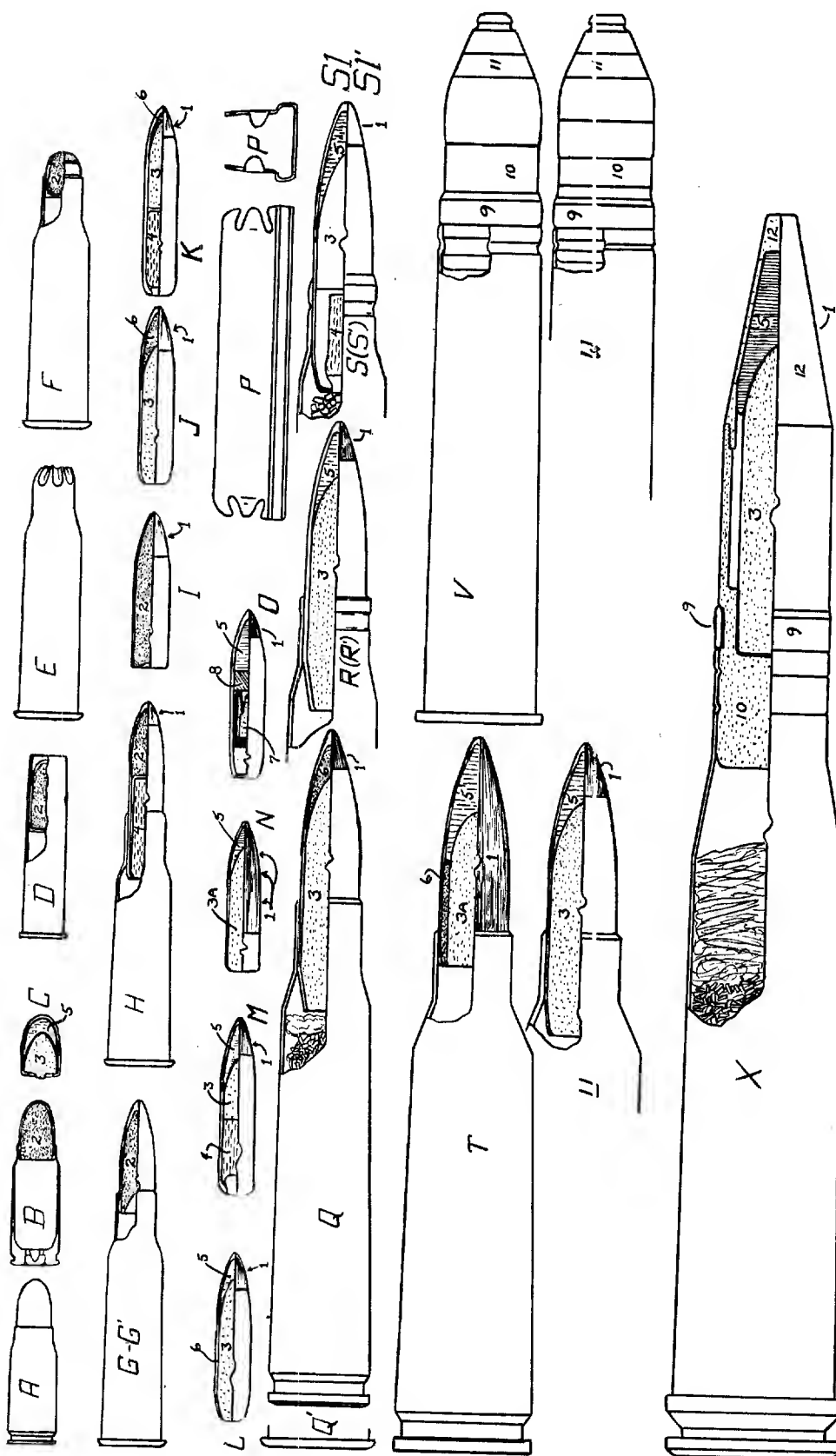
Below: the bolt assembly's component parts.

1. Bolt carrier or operating slide.
2. Bolt body.
3. Firing pin spring.
4. Firing pin retainer pin.
5. Firing pin spring.
6. Extractor.
7. Extractor spring.



No US weapon or class of weapons corresponds exactly with the PTRD/PTRS class. The closest approximation is the caliber .50 heavy-barrel Browning MG. Aside from rate of fire, however, the Fifty suffers by comparison: it weighs, with tripod, 120-odd pounds, not including a 35-lb ammo chest, while the PTRD scales 33 pounds with bipod, and the PTRS tallies 44 pounds. In the matter of ammunition, Russian ammo throws a 991-grain projectile at 3280 f/s, while the US ammo projects a 750-800 grain slug at around 2900 f/s.

Unquestionably, so far as general effectiveness is concerned, the high (comparatively) rate of fire of the Fifty makes up for the differences in ammunition and weights...but is it impossible that a weapon of the PTRD/PTRS class might be of use in the US service? The PTR weapon is surprisingly light for a weapon which can punch a hole in 30mm-thick armor at 100 meters - perhaps an American version of the 33-lb PTRD type would be useful where the Fifty could not readily be carried but where a weapon effective against medium armor and motor transport might be useful...as, for example, a behind-enemy-lines raid on supply facilities and motor pools. And one or two men with a light weapon of this type and a reasonable supply of ammunition could make life miserable for almost any type of transport...will-o'-the-wisps with



COLOR CODES: The nose of the projectile and sometimes the case or primer is painted a code color to indicate the type of projectile and, less frequently, the type of loading or strength of case.
Bullet nose: Green - tracer
 Violet - Tracer and AP core
 Red - incendiary composition
 Black - AP core
 Red - special strong case, usually aircraft use, in 7.62mm base marked for Schkass.
 Green - 7.62mm "partisan" load for rifle with silencer. Entire case and bullet may be green, or only bullet nose and primer may be painted.
 Black - seems to indicate a carbide projectile core in 7.62mm and 12.7mm.

Primer: Red - special strong case, usually aircraft use, in 7.62mm base marked for Schkass.
 Green - 7.62mm "partisan" load for rifle with silencer. Entire case and bullet may be green, or only bullet nose and primer may be painted.
 Black - seems to indicate a carbide projectile core in 7.62mm and 12.7mm.

Numbers used above indicate:

1. Color code marking.
2. Lead core.
3. Steel (AP) core.
- 3A. "Hard" core, probably carbide.
4. Tracer composition.
5. Incendiary composition.
6. Lining or sleeve (lead).
7. Firing pin.
8. Explosive or detonating composition.
9. Driving band...rotating band.
10. Shell body.
11. Nose fuze.
12. Aluminum windshield nose.

Ammo box markings:

- III brass ctg. case.
- IV Cu-plated steel case.
- IC steel case.

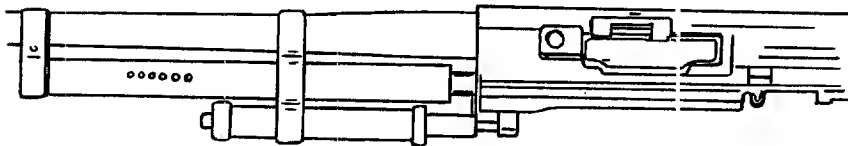
NOTE: bullet jackets are almost universally steel washed with cupronickel, gilding metal, Tom-pak or a similar composition. F has a partial jacket of brass.

Remember that these color and marking codes are vintage 1943!!!

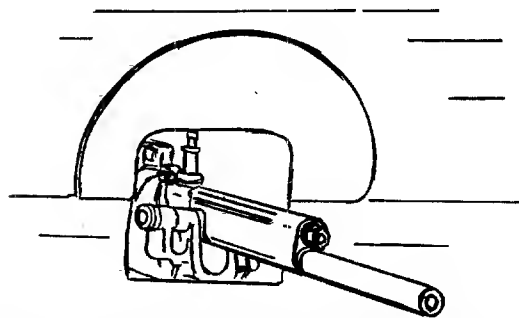
- A. 7.62mm Pistol
Code: plain
Bullet: 86 gr.
Powder: 7.7 gr.smkls.
MV: 1377 f/s.
Case: r/n or r/k
Brass case.
- B. Same.
R.P. white Co-lists MV at 1492 f/s.
- C. Same, AP-I bullet.
Code: black-red.
Bullet: 105 gr.
Powder: 4.6 gr.smkls.
MV: 890 f/s (R.P.W.Cp.: 948 f/s)
Case: r/n or r/k
- D. 7.62mm Revolver
Code: none
Bullet: 105 gr.
Powder: 4.6 gr.smkls.
MV: 890 f/s (R.P.W.Cp.: 948 f/s)
Case: r/n or r/k
- E. 7.62mm launcher
Code: none (crimped case mouth.)
Powder: 22.5 gr.smkls.
Case: r/n or r/k
- F. 7.62mm target (may also be used as a small-game load.)
Code: exposed lead nose.
Bullet: 69 gr. partial brass jacket, lead core exposed.
Powder: 123 gr.smkls.
Case: r/n
- G. 7.62mm standard ball
Code: plain
Bullet: 149.7 gr.
Powder: 50.2 gr.smkls.
MV: 2854 f/s.
Case: r/n or r/k
- G'. 7.62mm "partisan" load
Code: entire cartridge painted green or green primer and bullet nose.
Bullet: 150.5 gr.
Powder: 7.7 gr.smkls.
MV: 853 f/s \pm 98 f/s
Case: r/n or r/k
- H. 7.62mm tracer
Code: green
Bullet: 148 gr.
Powder: 46.9 gr.smkls.
MV: 2756 f/s
Case: r/n or r/k
- I. 7.62mm heavy ball
Code: yellow
Bullet: 182 gr.
Powder: 48.3 gr.smkls.
MV: 2670 f/s
Case: r/n or r/k
- J. 7.62mm light AP
Code: black
Bullet: 170 gr.
Powder: 49.4 gr.smkls.
MV: 2789 f/s
Case: r/n or r/k
- K. 7.62mm light AP/T
Code: violet
Bullet: 157.4 gr.
Powder: 49.4 gr.smkls.
MV: 2800-2850 f/s
Case: r/n or r/k
- L. 7.62mm light AP/I
Code: black-red
Bullet: 135.6 gr.
Powder: 51.7 gr.
MV: 2820-2870 f/s
Case: r/n or r/k
- M. 7.62mm AP/T/I
Code: violet-red
Bullet: 142 gr.
Powder: 49.4 gr.
MV: 2800-2850 f/s
Case: r/n or r/k
- N. 7.62mm heavy AP/I
Code: black-red
Bullet: 186.7 gr.
Powder: 47.8 gr.
MV: 2560 f/s
Case: r/n or r/k
- O. 7.62mm HE/I
Code: red
Bullet: 160.2 gr.
Powder: 44 gr.
MV: 2690-2740 f/s
Case: r/n or r/k
- P. Two views of five-round standard Russian charger.
- Q. 12.7mm (rimless) AP
Code: black
Projectile: 801 gr.
Powder: 270-293 gr.
MV: 2881 f/s.
Case: r/n
- Q'. 12.7mm (rimmed) AP
--same as Q except:
MV: 2658 f/s
- R. 12.7mm (rimless) AP/I
Code: black-red
Projectile: 721 gr.
Powder: 254.6 gr.
MV: 2840-2887 f/s
Case: r/n
- R'. 12.7mm (rimmed) AP/I
--same as R except:
MV: 2640-2690 f/s
- S. 12.7mm (rimless) AP/T/I
Code: violet-red
Projectile: 674 gr.
Powder: 262.4 gr.
MV: 2887-2930 f/s
Case: r/n
- S'. 12.7mm (rimmed) AP/T/I
--same as S except:
MV: 2690-2740 f/s
- SI. 12.7mm (rimless) HE/I
Code: red
Projectile: scaled-up version of 0.691 gr.
Powder: 270-293.2 gr.
MV: 2835-2887 f/s
Case: r/n
- SI'. 12.7mm (rimmed) HE/I
--same as SI except:
MV: 2658 f/s
- NOTE: SI & SI' not illustrated.
Rimless 12.7mm ammunition (Q, R, S, SI) is for use in the heavy ground Degtyarov. Rimmed 12.7mm ammunition (Q', R', S', SI') is for use in aircraft type guns of the SchvAK pattern.
- T. 14.5mm heavy AP/I
Code: bullet half red, half black
Projectile: 991 gr.
Powder: 486.6 gr.
MV: 3280 f/s
Case: r/n
- U. 14.5mm AP/I
Code: black-red
Projectile: 963 gr.
Powder: 471 gr.
MV: (estimated) 3200 f/s
Case: r/n
- V. and W. 20mm A/C loads.
No adequate data.
MV: reported 2785 f/s.
- X. 23mm AP/I (A/C)
Code: black-red or unpainted.
Projectile: 3017 gr.
Powder: 591 gr.
MV: not available. Sorry!
Case: r/n
- Y. 23mm AP/I (A/C)
Code: black-red or unpainted.
Projectile: 3017 gr.
Powder: 591 gr.
MV: not available. Sorry!
Case: r/n
- Partial index of (all available) Russian cartridge designations.
- | | |
|-----------------|---------|
| 7.62mm II | A, B, C |
| 7.62mm P | D |
| 7.62mm XB | E |
| 7.62mm II | G |
| 7.62mm T | H |
| 7.62mm II | I |
| 7.62mm B | J |
| 7.62mm B-32 | L |
| 7.62mm B3T | M |
| 7.62mm BC/BC-40 | N |
| 7.62mm 3II | O |
| 12.7mm B | Q-Q' |
| 12.7mm B-32 | R-R' |
| 12.7mm B3T | S-S' |
| 12.7mm 3II | SI-SI' |
| 14.5mm BC/BC-40 | T |
| 23mm B3 | X |
- Cross-check list of Russian ammunition from code color markings on cartridges.
- Plain - A, B, D, E, F, X,
Yellow - J, Q, Q',
Red - O, S, S' - C, L, R, R', U, X
Black-red - K
Violet - K
Violet-red - M
Green - H (C: note)
All green or green nose and green base, including primer - G
Black nose, red bullet and case mouth, black primer - N
Half black, half red bullet with black primer - T
- It may in general be safely assumed that any code color means that there is something special and probably dangerous about the bullet or cartridge so marked. Only uncolored cartridges may be used with any degree of confidence....and then there arises the question: "Did the colors come off?" - or "Was the cartridge made when the Russians weren't being too meticulous about markings?" The possibility of recent code changes and modifications should also be borne in mind.
- Russian ammunition, especially in smaller calibers, is reported to be poor. This is something which should not be depended on. Ammunition can be improved.
- Cases of 7.62mm ammo for A/C use are marked (Schkass) and have a red propeller stencilled on them.
Cases of 12.7mm rimless ammo are marked ДК-ДШК (DK or DShK).
Cases of 12.7mm rimmed ammo (for A/C gun) are marked ШВАК (SchvAK).
- Ammunition cases in all calibers are generally marked with a code color, generally in the form of a cross, corresponding to the code color (or colors) of the ammunition in the cases.
- "Cases" in the preceding four paragraphs refers not to cartridge cases but to ammunition cases, or chests.
- | | |
|---------------------|-----------------------|
| Пистолет | Pistol |
| Револьвер | Revolver |
| Холостное патрон | Blank cartridge |
| Латунь | Brass |
| Трассирующая пуля | Tracer bullet |
| Дальноточный | Long range |
| Бронепробивная пуля | Armor-piercing bullet |
| Защитная пуля | Incendiary bullet |
| Взрывчатый | weighty |
| Сердечник | Core |
| Снаряд | Projectile |
| Камуфляж | Купюль |

Some aircraft-gun information is exceedingly hard to get. Some of the guns noted on this page have been "reconstructed" from blurred or deliberately blotted photographs or illustrations, others have come from previously published material whose accuracy, especially in the captions, is seriously open to question.

The material is presented for whatever it's worth. I did not originally plan to include any of it, but even questionable material, provided it is honestly served up and not presented as the latest word from the Kremlin, is of value. The illustrations are mostly accurate (the motor-cannon is a "reconstruction"), but the identifications and data are, as you will note, tentative.

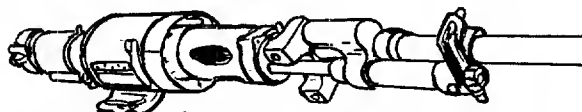


Heavy A/C MG, possibly 12.7mm, may be Beresin. Believed taken from a "Yak"-series fighter. Gas-operated, air cooled.

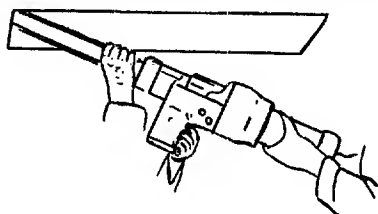


Identified in caption (AIR NEWS, Mar. 44) as the "12.7mm UB" gun. May be incorrect transliteration of the WAB or SchAV. German sources list the 12.7mm version of the Schpitalny as the SchVak, however.

BELOW: A reconstruction of the motor cannon from the "Yak". This is generally reported to be of the SchVak 20mm pattern.



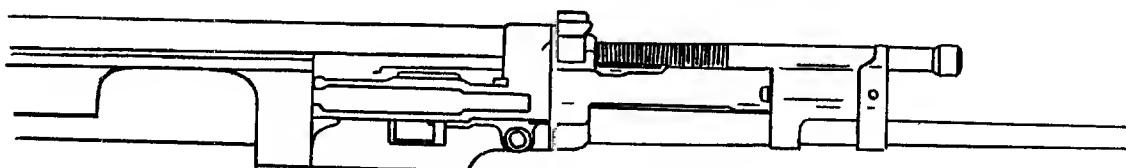
BELOW: A 20mm wing gun (SchVak or SchAV pattern uncertain) from the I12 Shturmovik. This was erroneously identified as 32mm in the original caption.



The 20mm flexible gun in the tail turret of the big TB7.

Bruchiss (AIRCRAFT ARMAMENT) gives the following cannon and heavy machine gun data for the armament of the IAG3 with 105P cannon-engine; cannon, 10mm, MV 2760 f/s, bore 39.8", length OA 84.8", weight 88.2 lbs., cyclic 700-800 RPM... machine gun, MV 2760 f/s, bore 39.8", length OA 53.7", weight 56.2 lbs., cyclic 700-800 RPM. The accuracy of this information, especially lengths and weights of cannon, is not guaranteed.

It might, however, be well to notice that many of these heavier guns, notably the Schvak and Schave, share many of the characteristics of the Schkass, whose basic design seems to have been remarkably adaptable. The feed system in particular is ideal for large-caliber automatic guns, since it permits use of a light and flexible belt system without the possibility of a round's slipping out of an open-sided link and yet does not impose the sudden pull on a round which would otherwise be necessary to withdraw it from a closed-link belt - a pull which offers the unpleasant alternatives of a heavy crimp (with attendant variations in chamber pressure) or a round which may just leave its projectile "sitting there" as the case is jerked from the belt.



Identified as "one of the famous 22mm tank-killing guns in a Stormovik" (AIR TECH, Jan. 48). Check 23mm ammo.